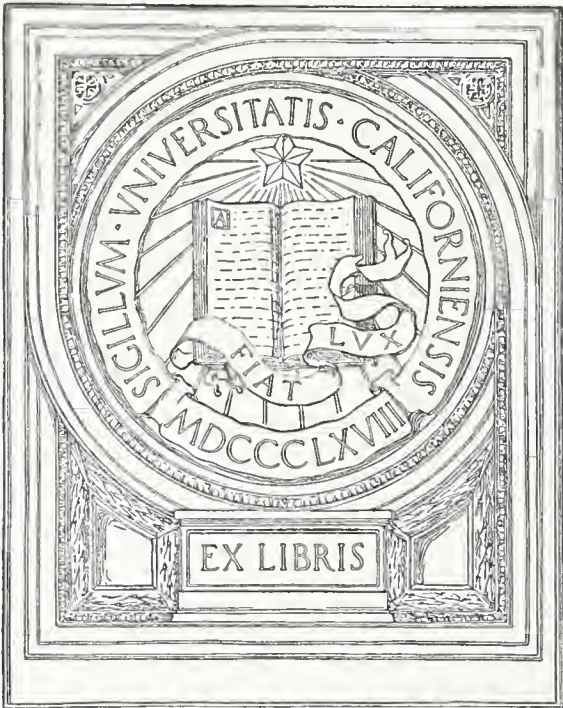



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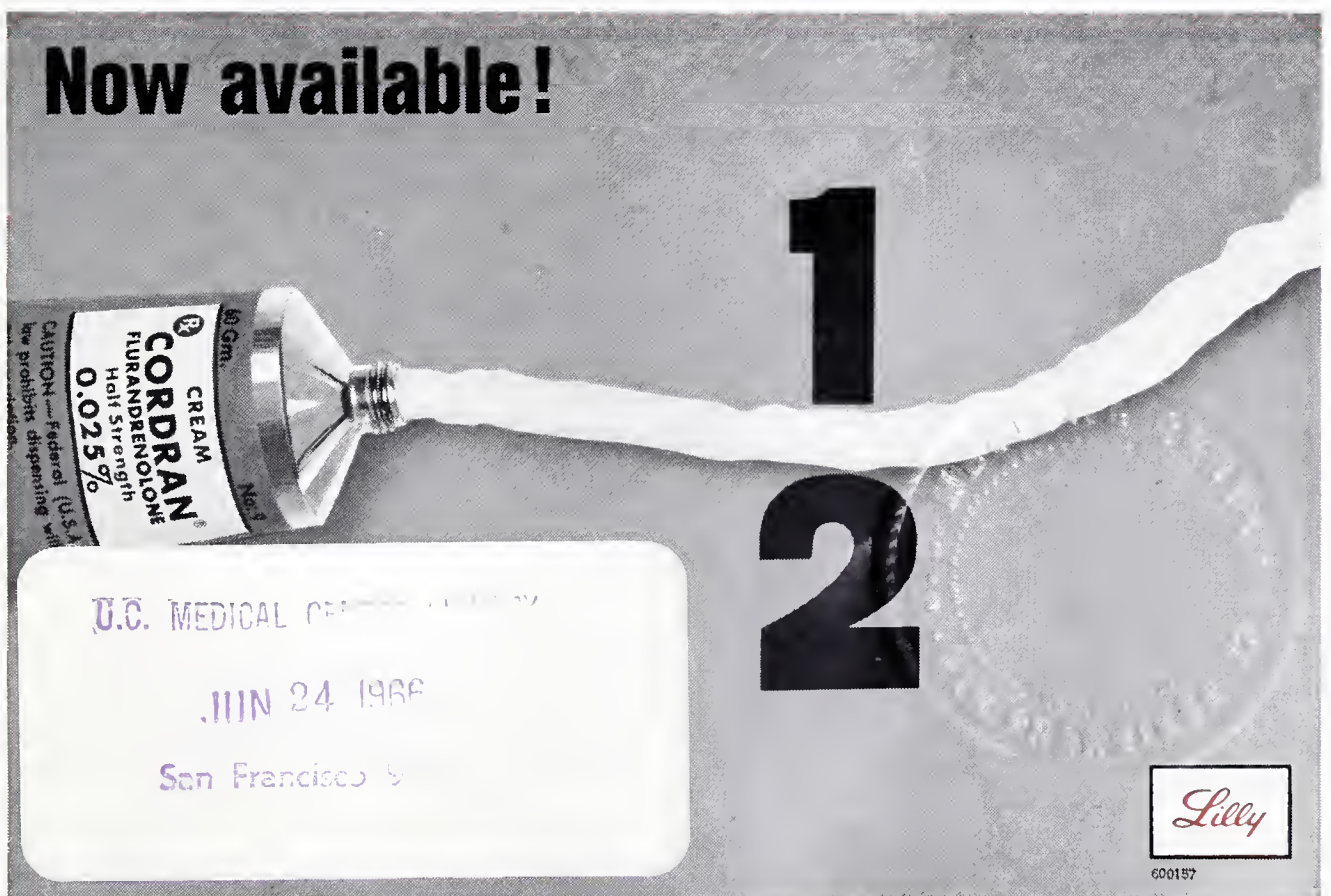
June, 1966

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 63 No. 1

FORT SMITH, ARKANSAS

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L. A. WHITTAKER, JR.

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ARKANSAS MEDICAL SOCIETY

1966-1967

PROCEEDINGS
90th Annual Session
ARKANSAS MEDICAL SOCIETY
Arlington Hotel, Hot Springs
May 1-4, 1966

**FIRST MEETING
HOUSE OF DELEGATES**

Speaker J. P. Price called the meeting to order in the Fountain Room of the Arlington Hotel at 1:00 p.m. on Sunday, May 1, and called on Society President C. Lewis Hyatt for the invocation.

Secretary Elvin Shuffield called the roll of delegates. The following delegates, officers, and members seated as delegates by action of the House were present:

ARKANSAS, R. H. Whitehead; BAXTER, John F. Guenthner; BENTON, W. E. Jennings; BOONE, H. V. Kirby; BRADLEY, George F. Wynne; CLARK, H. D. Luck; COLUMBIA, Paul Sizemore; CRAIGHEAD-POINSETT, B. P. Raney; Edward M. Cooper; CRAWFORD, M. C. Edds; CRITTENDEN, David H. Pontius; DALLAS, Don Howard; DESHA, J. H. Hellums; DREW, J. P. Price; FRANKLIN, David L. Gibbons; GARLAND, Louis McFarland; GRANT, Curtis Clark; GREENE-CLAY, Omer Bradsher; HOT SPRING, C. R. Ellis; INDEPENDENCE, Jim E. Lytle; JEFFERSON, Ross E. Maynard; JOHNSON, James M. Kolb, Sr.; LITTLE RIVER, James D. Armstrong; MILLER, Karlton Kemp; MISSISSIPPI, F. E. Utley; MONROE, E. D. McKnight; NEVADA, Charles A. Hesterly; OUACHITA, James Guthrie; POPE-YELL, Charles F. Wilkins; PULASKI, T. D. Brown, Charles Kennedy, Alan Cazort, James Flack, Joseph Calhoun, Jerome Levy, Winston Shorey,

James Morrison, Bill Floyd, J. L. Smith, Robert Watson, William Snodgrass, Gilbert Dean; SCOTT, Harold B. Wright; SEBASTIAN, Wright Hawkins, R. C. Goodman, Carl L. Wilson; A. C. Bradford; UNION, Kenneth R. Duzan; WASHINGTON, Roger Edmondson, Wilbur G. Lawson; COUNCILORS Eldon Fairley; Hugh Edwards, Paul Gray, L. J. Pat Bell, Paul Millar, H. W. Thomas, T. E. Townsend, George Burton, John P. Wood, Karlton Kemp; Robert F. McCrary, Jack Kennedy, W. Payton Kolb, Ross Fowler, Stanley Applegate, A. S. Koenig, C. C. Long. President C. Lewis Hyatt, President-elect L. A. Whittaker, Speaker of the House John P. Price; Secretary Elvin Shuffield; Treasurer Ben Saltzman, Past Presidents Joe Verser, James M. Kolb, Sr., T. Duel Brown, C. R. Ellis.

The chairman of the Credentials Committee, C. R. Ellis, reported that a quorum was present.

Speaker Price introduced the following special guests:

Mrs. Charles F. Wilkins, president of the Woman's Auxiliary to the Arkansas Medical Society, Russellville, Arkansas
Mrs. John McCollough Smith, president-elect, Woman's Auxiliary to the Arkansas Medical Society, Little Rock, Arkansas

Mrs. John Chenault, member of the Board of Directors of the Woman's Auxiliary to the American Medical Association, Decatur, Alabama

Mrs. C. C. Long, First Vice President of the Woman's Auxiliary to the American Medical Association, Ozark, Arkansas

Minutes of the 89th Annual Session were approved as published in the June 1965 issue of

ARKANSAS MEDICAL SOCIETY OFFICERS 1966-1967



Seated, left to right, Councilor Hugh Edwards, Secretary Elvin Shuffield, President L. A. Whittaker, Jr., President-elect Joseph A. Norton, Chairman of the Council H. W. Thomas, Treasurer Ben N. Saltzman, Past President James M. Kolb, Sr., (second row, left to right) Councilors Jack W. Kennedy, Paul Gray, Eldon Fairley, W. Payton Kolb, James R. Morrison, Ross Fowler, Karlton Kemp, A. S. Koenig (back row, left to right) Executive Vice President Mr. Paul C. Schaefer, Councilors L. J. Pat Bell, C. C. Long, John P. Wood, Stanley Applegate, T. E. Townsend.

Officers not shown are: First Vice President, Art B. Martin; Second Vice President Berry L. Moore, Jr.; Third Vice President David H. Pontius; Secretary Emeritus W. R. Brooksher; Speaker of the House J. P. Price, Vice Speaker Amail Chudy; Journal Editor Alfred Kahn, Jr.; Councilors Bascom P. Rancey, Paul Millar, George Burton, Paul Sizemore, Robert F. McCrary.

the Journal of the Arkansas Medical Society. Also approved were minutes of the special meetings of the House of Delegates on September 19, 1965, as published in the December 1965 Journal and on December 5, 1965, as published in the March 1966 Journal.

Speaker Price called on the chairman of the Council, H. W. Thomas, for a supplementary report of the Council covering meetings held since publication of the March issue of the Journal. The following report by Dr. Thomas was accepted by the House and referred to Reference Committee No. 2:

SUPPLEMENTARY REPORT OF THE COUNCIL

The Council met at noon on Sunday, April 3, 1966, and transacted the following business:

1. Authorized travel expenses for Mr. Warren to attend

a legal conference in Chicago.

2. Voted to request regularly-elected delegates and alternates to the AMA to represent the Society at a Medicare Conference in Chicago, June 25th.
3. Considered and approved the budget submitted by the Budget Committee.
4. Voted to request the editor of the Journal to discontinue publication of bibliographies in connection with scientific articles.
5. Authorized the Executive Committee to take whatever action it considers appropriate regarding acceptance of an active membership on the Arkansas Interagency Council on Smoking.
6. Referred to a Reference Committee of the House of Delegates a minority report of the Sub-Committee on Tuberculosis.
7. Heard a report by C. C. Long, Chairman of the 21-Man Medicare Committee, on the progress of that committee.
8. Voted to increase the budgeted amount to \$250 to be contributed to the Arkansas Chapter, Student American Medical Association for travel expenses to their convention in Los Angeles.
9. Voted to accept the Mead Johnson offer of a cash



Final Session of the House of Delegates, Wednesday, May 4, President-elect Joseph A. Norton makes his acceptance speech.

- award and a plaque for the best scientific exhibit at the Society's 1966 convention.
10. Adopted a resolution submitted by the Union County Medical Society supporting the stand of pathologists in their disagreement with social security administration officials on billing for services rendered in hospitals.
11. Authorized the president of the Society to arrange for special recognition of Dr. J. H. McCurry's work with the Fifty Year Club and other activities of organized medicine.
12. Directed the Executive Vice President to write to the chiefs-of-staff of all hospitals urging them to see that physicians take the lead in activating utilization committees.
13. Directed the Executive Vice President to obtain information on the Casey Bill of California. The bill prohibits the Welfare Department from serving as intermediary where the Welfare Department "buys in" in Public Law 89-97 for its Welfare clients.
14. Adopted and approved the audit report as presented by treasurer Ben Saltzman.
15. Voted travel expenses for the president of the Society to attend the installation of the AMA president during the June convention in Chicago.
16. Took note of the fact that Ben Saltzman had recently been named chairman of the Council on Rural Health of the American Medical Association.
17. Accepted the offer of the Parke Davis Company to present framed pictures from the "History of Medicine" series to the Society. The pictures are to be given to the Medical Center for use as it sees fit.

Speaker Hyatt called for reports of committees. Ben Saltzman, as chairman of the Rural Health Committee, presented the following supplementary report:

SUB-COMMITTEE ON RURAL HEALTH

The Eighth Arkansas Rural Health Conference was held March 10, 1966, at the Hotel Marion in Little Rock. The Conference theme was "Health, The Foundation of Happiness". The Conference was sponsored by the Arkansas Medical Society, Committee on Rural Health and promoted with the help of the Agricultural Extension Service, the Arkansas Farm Bureau Federation, the Arkansas Dental Society, the Extension Homemakers Council, Arkansas Blue Cross-Blue Shield, the Woman's Auxiliary to the Arkansas Medical Society and the Arkansas Power and Light Company.

The chief participants in the Conference were members of the Rural Community Improvement Clubs of the State. There were 288 people in attendance from over the entire State. Appearing on the program were Dr. C. Lewis Hyatt, president of the Arkansas Medical Society; Dr. Roger Bost, Associate Professor of Pediatrics, University of Arkansas Medical Center; Mrs. John McC. Smith, president-elect of the Woman's Auxiliary to the Arkansas Medical Society; Dr. Winston K.

Shorey, Dean of the University of Arkansas School of Medicine; Mrs. Virgil Ray Forester, Safety Chairman, Woman's Auxiliary to the American Medical Association; Mrs. C. C. Long, First Vice President of the Woman's Auxiliary to the American Medical Association; Dr. Edgar J. Easley, Assistant State Health Officer for Arkansas; Dr. Lawrence D. Furlong, Dental Director of the Arkansas State Health Department; Mr. Rick Campbell, Director of Public Relations of Arkansas Blue Cross-Blue Shield, and Dr. Bond Bible, Secretary of the Council on Rural Health of the American Medical Association.

The program was a varied one and elicited a large number of responses from the audience.

Following the Conference, all the participants were guests of the Arkansas Power and Light Company at an annual R.C.I. banquet.

The Committee on Rural Health of the Arkansas Medical Society awarded plaques to four district winners and one state winner for outstanding community health projects.

The chairman was reelected vice-president of the State R.C.I. Association.



One of the first duties of the new president, L. A. Whittaker, was to present a plaque of appreciation to the out-going president, C. Lewis Hyatt. Tuesday evening, May 3, President's Banquet.



The Past presidents of the Society were honored at breakfast on Wednesday morning, May 4th. Present were William A. Snodgrass, Jr., Euclid M. Smith, C. Lewis Hyatt, C. R. Ellis, James M. Kolb, Sr., W. H. Mock and H. King Wade, Sr.

The report was referred to Reference Committee No. 3.

Elvin Shuffield presented a report of the Committee on Medical Legislation. The report was approved and accepted by the House as read.

The following report of the Auxiliary president was presented and referred to Reference Committee No. 3:

REPORT OF THE AUXILIARY PRESIDENT

As president of the Woman's Auxiliary to the Arkansas Medical Society, I have tried to coordinate the work of all the counties by my visits, correspondence, and four board meetings. It has been a most rewarding year by having a part in the friendships and congeniality among our doctors and their wives and witnessing their continuing interests in their communities.

The Woman's Auxiliary to the Arkansas Medi-

cal Society has continued its activities in the program fields as suggested by the American Medical Association, its auxiliary, and The Arkansas Medical Society. Community Service has been one of the major program emphasis during the past year. This is brought about by the natural tie-in with activities required of parents and citizens interested in their communities. We have continued our interest in Disaster Preparedness, Recruitment for Health Careers (sponsoring Health Career Days in Public Schools), and Safety. The tuberculosis hospitals in Booneville and McRae still receive our assistance with their libraries through the Earl Chambers Library Fund. Some of our members have collected and shipped drugs, bandages and hospital gowns overseas through our International Health Committee. We continue to collect donations for AMA-ERF. The Martha Harding Gann Memorial



The new president of the Society, Dr. L. A. Whittaker, was escorted to the rostrum by James M. Kolb and Elvin Shufield (not shown) for administration of the Oath of Office by out-going president C. Lewis Hyatt. Inaugural Banquet, Tuesday, May 3.

Fund made five new loans to student nurses in the amount of \$1,831.00. The Ilse F. Oates Student Loan Fund made twelve loans totaling \$6,000.00. These loans were made to student physicians. The Brooksher Loan Fund made one new loan this year. All of these funds have good balances to begin the new year and we will continue accepting donations and memorials to build them up.

Our auxiliary cooperated with The Arkansas Medical Society in planning and carrying out the Rural Health Conference and the RCI program and awards banquet.

The major need of the auxiliary that the Medical Society is asked to assist with at this time is that of membership. Each physician's wife is needed to help us as we support and try to carry out your program. Her membership alone will show her interest in the society programs and the

auxiliary pursuits.

I have traveled 4,798 miles within the state of Arkansas and have made trips to New York City, Chicago, and Atlanta as representative of the Woman's Auxiliary to the Arkansas Medical Society. I have attended all meetings of other organizations that asked that I be present. I have tried to answer all correspondence promptly and have kept all officers and committee chairmen reminded of events and dates as needed. This past year has been busy, eventful, happy, and most rewarding to me as president of the Woman's Auxiliary to the Arkansas Medical Society.

To Dr. Hyatt, members of the Society Advisory Committee, Paul Schaefer and his staff I am most grateful for your support, advice, and assistance. Without you, my year as president would not have been nearly so pleasant and rewarding. On behalf of the Woman's Auxiliary to the Arkansas

Medical Society, I express our thanks to each member of the Society and pledge our continued interest and support of your programs. We ask that our relationship remain as friendly and mutually cooperative in all our undertakings.

The chairman of the Constitutional Revisions Committee, C. R. Ellis, presented the following report:

REPORT OF CONSTITUTIONAL REVISIONS COMMITTEE

The following proposed amendment was drawn up at the request of the Council of the Arkansas Medical Society and it is submitted for

the consideration of the House of Delegates:

AMEND By-Laws, Chapter VIII (Committees) Section 1 (A) by adding as committee number twelve "Committee on Area-Wide Planning".

AMEND By-Laws, Chapter VIII (Committees) by adding Section 13:

A Committee on Area-Wide Planning on Medical Facilities shall take the initiative in organizing community, district, and/or state groups for the efficient planning of new medical and hospital facilities or additions made to such existing institutions.

The report was referred to Reference Committee No. 1.



President L. A. Whittaker presents his "R.I.P." program for his tenure of office. President's Banquet, Tuesday, May 3rd.

W. Payton Kolb, councilor from the eighth district, presented the following resolution:

**RESOLUTION FROM PULASKI COUNTY
MEDICAL SOCIETY**

RE: Shortage in Health Manpower

WHEREAS, there exists in Arkansas a shortage in the health field to the degree that much needed hospital beds have been closed, and

WHEREAS, the existence of a critical shortage in the health manpower at the state and national levels offers little hope for relief of this situation through attraction of needed personnel from other parts of the country, and

WHEREAS, this shortage of manpower to provide health care will be greatly accentuated with the implementation of new federal health programs,

THEREFORE, BE IT RESOLVED, that the Arkansas Medical Society mobilize its energy, talents, and influence to the end that the most effective use be made of any existing manpower available to assist in the care of patients, and

BE IT FURTHER RESOLVED that the Arkansas Medical Society work with appropriate professional organizations in nursing and other agencies and institutions to foster programs that will produce the necessary manpower for future health needs, and

BE IT FURTHER RESOLVED that the Delegates of the Arkansas Medical Society to the American Medical Association introduce for passage by the House of Delegates a resolution committing the American Medical Association to a similar course of action.

Upon motion of W. Payton Kolb and Alan Ca-zort, the House adopted the resolution.

George Burton, councilor from the fifth district, presented the following resolutions:

RESOLUTION RE: BLUE CROSS-BLUE SHIELD

WHEREAS, Blue Cross-Blue Shield has sent letters, pamphlets and placed advertisements in newspapers urging its elderly policyholders to sign up for Part B of Medicare (P.L. 89-97 Sec. XVIII) and

WHEREAS, it is said that Blue Cross and other insurance companies will cancel their regular contracts with their policyholders age 65 years and older as of midnight June 30, 1966, and will thereafter offer only supplements to Medicare, and

WHEREAS, we believe that the elderly of these United States should be offered private health insurance as an alternative to Medicare in which the elderly must depend upon Federal tax money for their medical services. Now therefore let it be

RESOLVED that the House of Delegates of the Arkansas Medical Society in its regular meeting on this 1st day of May 1966, condemns all those insurance companies who are active in promoting Medicare and who are cancelling the regular health insurance policies for the elderly, thereby forcing these people to become dependent upon the Federal Government for their Medical Care, and further be it

RESOLVED that praise and recognition be given to those insurance companies that continue the contracts with their elderly policyholders the same as before Medicare, and further be it

RESOLVED that copies of this resolution be sent to the news media, to every county medical society in Arkansas, to every State Medical Society and to the various insurance companies involved, and further be it

RESOLVED that our delegates to the next American Medical Association meeting be instructed to present a similar resolution to the House of Delegates for their approval and action.

RESOLUTION RE: INDIVIDUAL RESPONSIBILITY

WHEREAS, quality medical care can only be assured by maintaining the fundamental principles of the patient-physician relationship free from the influence of third parties, and

WHEREAS, this tenet is embodied in the Principles of Medical Ethics of the American Medical Association, Section VI, which reads 'A physician should not dispose of his services under terms or conditions which tend to interfere with or impair the free and complete exercise of his medical judgment and skill or tend to cause a deterioration of the quality of medical care', and

WHEREAS, this tenet is embodied in the principles of individual responsibility wherein the physician is responsible to the patient for all aspects of rendering medical care to the best of his ability; and the patient is responsible for obtaining and providing for the payment of this medical care, and

WHEREAS, the acceptance of benefits from a fiscal intermediary has posed in the past, and will continue to pose, a distinct threat to this patient-physician relationship and can result in deteriora-



President C. Lewis Hyatt was master of ceremonies for the inaugural banquet on Tuesday, May 3rd, in the Arlington Hotel.

tion of quality medical care, and

WHEREAS, the attending physician's itemized and receipted statement is reasonable and adequate for reports of medical services to patients for reimbursement; thus eliminating third party interference in the 'doctor-patient' relationship; now therefore be it

RESOLVED that the House of Delegates of the Arkansas Medical Society on May 1, 1966, endorses and approves the use of the itemized and receipted statement to the patient as a means of maintaining individual responsibility in the pay-

ment for medical services; and be it further

RESOLVED that all members of the Arkansas Medical Society be informed by the Executive Vice President of the Arkansas Medical Society of this action with supporting information in order that physicians may voluntarily preserve an ethical patient-physician relationship; and be it further

RESOLVED that the House of Delegates of the Arkansas Medical Society request its delegation to the American Medical Association to introduce and support this or a similar resolution

at the next meeting of the House of Delegates of the American Medical Association.

The resolutions were referred to Reference Committee No. 2 for consideration.

W. O. Young, chairman of the Sub-Committee on Mental Health, reported on the Comprehensive Mental Health Planning Project for Arkansas. The report was received by the House of Delegates as a matter of information.

The Speaker called the attention of the members of the House of Delegates to meetings of the Reference Committees and urged all physicians to take advantage of the opportunity to participate in the opening hearings on the various reports and resolutions referred to each committee.

Speaker Price announced that elections would be held at 3:00 p.m. to select nominees for the second and fourth congressional districts positions on the Arkansas State Board of Health.

The speaker then announced that the selection of the nominating committee for election of officers would be made. Delegates from the various councilor districts held meetings on the floor and selected the nominating committee as follows: First District, Edward M. Cooper; Second District, Jim Lytle, Batesville; Third District, L. J. Pat Bell; Fourth District, T. E. Townsend; Fifth District, George F. Wynne; Sixth District, James Armstrong; Seventh District, Curtis B. Clark; Eighth District, James R. Morrison; Ninth District, John F. Guenther; Tenth District, Calvin Bradford.

The House adjourned at 2:30 p.m.

SCIENTIFIC SESSIONS

Members had a choice of two programs of scientific lectures presented simultaneously by a team of physicians from the University of Michigan Medical Center in Ann Arbor, Michigan. Robert F. McCrary, M.D., councilor from the seventh district, presided at the Monday morning session in the Ballroom, where the following subjects were discussed: "Present Status of Obstetric Radiology", Walter M. Whitehouse, M.D., Professor and Chairman of the Department of Radiology; "Acne Vulgaris", Arthur C. Curtis, M.D., Professor and Chairman of the Department of Dermatology; "Physiological Complaints in Depression", Raymond W. Waggoner, M.D., Sc.D., Professor and Chairman of Department of Psychiatry; "Obesity in Childhood", George H. Lowrey, M.D., Professor of Pediatrics and Communi-

cable Diseases; "Treatment of Status Asthmaticus", Neal A. Vanselow, Assistant Professor of Internal Medicine (Allergy); "Surgical Treatment of Hypertension: Part I, Renovascular Hypertension", Joseph C. Cerny, M.D., Assistant Professor of Surgery (Urology).

M. C. Hawkins, Jr., M.D., of Searcy presided at the Monday afternoon session in the Banquet Room, at which the following program was presented: "Recent Advances in the Treatment of Shock", Jeremiah G. Turcotte, M.D., Assistant Professor of Surgery; "Intravenous Regional Anesthesia", Robert B. Sweet, M.D., Professor of Anesthesiology; "Clinical Diagnosis of Ovarian Enlargements in Childhood and Adolescence", John R. G. Gosling, M.D., Associate Professor of Obstetrics and Gynecology; "Pathology of Ovarian Neoplasm in Childhood and Adolescence", Murray R. Abell, M.D., Ph.D., Professor of Pathology, Pathology Department; "Parotid Tumors", Roger Boles, M.D., Instructor in Otorhinolaryngology, "Diagnostic Problems in Trauma of the Extremities", A. William Kieger, M.D., Instructor in Surgery (Section of Orthopaedic Surgery).

Immediately following the conclusion of the scientific program on Monday morning, President C. Lewis Hyatt, M.D., made his "President's Address" to the membership.

The scientific session in the Ballroom on Monday Afternoon was presided over by M. C. Hawkins, Jr., M.D., of Searcy. The program was as follows: "Further Experiences with Isotope Radiology", Walter M. Whitehouse, M.D., Professor and Chairman of the Department of Radiology; "Surgical Treatment of Hypertension: Part II, Aldosteronism", Joseph C. Cerny, M.D., Assistant Professor of Surgery (Urology); "Hypersensitivity to Stinging Insects", Neal A. Vanselow, M.D., Assistant Professor of Internal Medicine (Allergy), "What Can One Do About Warts?", Arthur C. Curtis, M.D., Professor and Chairman of Department of Dermatology; "The Use of Psychotropic Drugs in General Practice", Raymond W. Waggoner, M.D. Sc.D., Professor and Chairman of the Department of Psychiatry; "Effect of Anti-Hypertensive Drugs on Anesthesia", Robert B. Sweet, M.D., Professor and Chairman of the Department of Anesthesiology.

Dr. J. Warren Murry, M.D., Third Vice President of the Society, presided at the scientific session in the Banquet Room on Monday Afternoon. The following program was presented: "Common



On behalf of the American Medical Association Education and Research Foundation, President C. Lewis Hyatt presents a \$6,444.73 check to Dean Winston K. Shorey of the University of Arkansas School of Medicine.

Problems in the Diabetic Child", George H. Lowrey, M.D., Professor of Pediatrics and Communicable Diseases; "Surgical Management of Bell's Palsy", Roger Boles, M.D., Instructor in Otorhinolaryngology; "Cerebral Palsy in Office Practice", A. William Kieger, M.D., Instructor in Surgery (Section of Orthopaedic Surgery); "Pathogenesis and Treatment of Portal Hypertension", Jeremiah G. Turcotte, M.D., Assistant Professor of Surgery; "Chronic Lesions of Vulva", John R. G. Gosling, M.D., Associate Professor of Obstetrics and Gynecology; "Leukoplakia, Dysplasia and Carcinoma in Situ of Vulva", Murray R. Abell, M.D., Ph.D., Professor of Pathology.

The Tuesday Morning session in the Ballroom was presided over by J. Warren Murry, M.D., Third Vice President of the Society. The following subjects were discussed: "Endometrial Biopsy—Clinical Aspects", John R. G. Gosling, M.D., Associate Professor of Obstetrics and Gynecology; "Endometrial Biopsy—Pathological Interpreta-

tion", Murray R. Abell, M.D., Ph.D., Professor of Pathology; "The Mass in the Neck", Roger Boles, M.D., Instructor in Otorhinolaryngology; "Management of Acute Hematogenous Osteomyelitis", A. William Kieger, M.D., Instructor in Surgery (Section on Orthopaedic Surgery); "A Rational Approach to Fluid and Electrolyte Therapy", Jeremiah G. Turcotte, M.D., Assistant Professor of Surgery; "Effect of MAO Inhibitors on Anesthesia", Robert B. Sweet, M.D., Professor of Anesthesiology.

Robert F. McCrary, M.D., councilor from the seventh district, presided at the session in the Banquet Room on Tuesday Morning, at which the following program was presented: "Accidental Poisoning", George H. Lowrey, M.D., Professor of Pediatrics and Communicable Diseases; "Marriage Counseling as a Responsibility of the Physician", Raymond W. Waggoner, M.D., Sc.D., Professor and Chairman of Department of Psychiatry; "The Failing Kidney: Diagnosis and Treatment",

Joseph C. Cerny, M.D., Assistant Professor of Surgery (Urology); "Immediate Drug Reactions: Prevention and Treatment", Neal A. Vanselow, M.D., Assistant Professor of Internal Medicine (Allergy); "Benign and Malignant Lesions of the Skin", Arthur C. Curtis, M.D., Professor and Chairman of Department of Dermatology; "Unusual Manifestation of Bronchial Carcinoma", Walter M. Whitehouse, M.D., Professor and Chairman of the Department of Radiology.

Roundtable Luncheons were held in the Main Dining Room of the Hotel on Monday and Tuesday, offering members an opportunity for informal discussion with the speakers on the subjects presented.

RELATED MEETINGS

The *Arkansas Dermatologic Society* held its annual clinical meeting in Little Rock on Sunday, May 1, with Arthur C. Curtis, M.D., Professor and Chairman of the Department of Dermatology of the University of Michigan Medical Center, as guest.

The *Association of Tumor Clinic Staff Members in Arkansas* held a scientific session on Sunday Afternoon, May 1, in the Arlington Hotel, with Joseph A. Buchman, M.D., Chairman, presiding. Lester W. Martin, M.D., Associate Professor of Surgery at the University of Cincinnati College of Medicine and Director of Pediatric Surgery at the Children's Hospital, spoke on "Recent Advances in the Management of Malignant Tumors of Childhood". Serving as discussants were D. H. Berry, M.D., Assistant Professor of Pediatrics, University of Arkansas School of Medicine, and Joseph D. Calhoun, M.D., Assistant Clinical Professor of Radiology at the University of Arkansas School of Medicine.

A joint meeting of the *Urologists and Pediatricians* was held on Monday Afternoon, May 2, in the Velda Rose Tower. Robert I. Garratt, M.D., Professor of Urology at Indiana University School of Medicine in Indianapolis, spoke on "Cineurography"; George H. Lowrey, M.D., Professor of Pediatrics and Communicable Diseases at the University of Michigan Medical Center, Ann Arbor, Michigan, spoke on "Differential Diagnosis of Doubtful Sex". Following these talks, there was a panel discussion on "Pyelonephritis". Dr. Garratt, Dr. Lowrey, Dr. Joseph C. Cerny (Assistant Professor of Urology at the University of Michigan Medical Center) and Dr. Theodore C. Panos (Professor of Pediatrics at the University of Arkansas Medical Center) made up the panel.

The *Eye, Ear, Nose and Throat Section* of the Society held an all-day meeting on Tuesday, May 3, in the Arlington Hotel. Harold Beasley, M.D., of Fort Worth, Texas, spoke on "Visual Fields in Aphakia and Late Vitreous Complications Following Cataract Surgery". Daniel Baker, M.D., of New York City spoke on "Trauma to the Larynx".

The consultants to the *Crippled Children's Division*, Arkansas State Department of Public Welfare, met for lunch on Monday in the Arlington Hotel. Dr. William B. Stanton of Fort Smith is medical director of the Crippled Children's Division.

The *Arkansas Radiological Society* met for a scientific and business session on Tuesday afternoon in the Arlington Hotel.

The *Arkansas Orthopedic Society* held a business meeting on Tuesday afternoon at the Velda Rose Towers.

The *Arkansas District Branch of the American Psychiatric Association* held a scientific and business session on Tuesday afternoon in the Arlington Hotel.

The *Arkansas Society of Internal Medicine* held a business meeting and panel program on "The Internists and the Third Party—Medicare, Insurance, etc." on Tuesday afternoon in the Arlington Hotel.

The *Arkansas Academy of General Practice* held a scientific session on Tuesday afternoon in the Ballroom of the Arlington Hotel.

The *Arkansas State Advisory Committee to the Selective Service System* held a meeting in the Arlington Hotel on Monday evening, May 2. Gerald H. Teasley, M.D., of Texarkana, is chairman of the Advisory Committee. Colonel Fred M. Croom of the Selective Service System met with the committee.

The *1951 Graduating Class of the University of Arkansas School of Medicine* held a reunion on Monday evening, May 2, in the Velda Rose Towers.

OTHER ACTIVITIES

The *past presidents* of the Society were honored at a breakfast on Wednesday morning, May 4, in the Arlington Hotel.

The *Fifty Year Club* of the Society was honored with a breakfast on Tuesday morning, May 3, in the Arlington Hotel.

The *Arkansas State Medical Assistants Society* furnished free coffee and doughnuts to the members of the Society and their guests during the convention.



Dr. Robert Watson, President and Chairman of the Board of Directors of the Medical Education Foundation for Arkansas, presents a \$6,500 check to Dr. Winston K. Shorey, Dean of the University of Arkansas Medical School, for the student loan program. President's Banquet, Tuesday, May 3rd.

MEMORIAL SERVICE

A joint Memorial Society of the Arkansas Medical Society and the Woman's Auxiliary was held on Tuesday morning, May 3rd, in the North Parlor of the Hotel. The president of the Society, Dr. C. Lewis Hyatt, presided.

Invocation was by Dr. Fred O. Henker of Little Rock.

Mrs. Charles F. Wilkins, Jr., president of the Auxiliary, read the following names of deceased members of the Auxiliary:

Mrs. L. R. Bogaev, Jonesboro
 Mrs. Perry J. Dalton, Camden
 Mrs. George Hardgrave, Clarksville
 Mrs. W. F. Smith, Little Rock
 Mrs. T. J. Raney, Little Rock

Mrs. J. S. Jenkins, Pine Bluff

Dr. Hyatt read the following listing of names of deceased members of the Society:

Dr. Byron Z. Binns, Eudora
 Dr. Matthew M. Blakely, Benton
 Dr. W. H. Bruce, Pine Bluff
 Dr. T. E. Buffington, Benton
 Dr. John Nye Compton, Little Rock
 Dr. William B. Connolly, Helena
 Dr. N. B. Ellis, Wilson
 Dr. James R. Fall, West Memphis
 Dr. Ellery C. Gay, Sr., Little Rock
 Dr. J. G. Gladden, Harrison
 Dr. Clarence L. Glenn, Fort Smith
 Dr. Harlan H. Hill, Little Rock
 Dr. Albert H. Hudgins, Searcy

Dr. Gilbert L. Kimball, Daisy
 Dr. O. J. Kirksey, Mulberry
 Dr. B. T. Kolb, Little Rock
 Dr. D. C. Lee, Hot Springs
 Dr. Benjamin D. Luck, Pine Bluff
 Dr. Washington M. McRae, Little Rock
 Dr. L. C. McVay, Marion
 Dr. Frank C. Maguire, Sr., Augusta
 Dr. J. J. Monfort, Batesville
 Dr. Berry L. Moore, Sr., El Dorado
 Dr. H. A. Murphy, El Dorado
 Dr. William L. Newton, Smackover
 Dr. Norf G. Partee, Camden
 Dr. T. J. Raney, Jr., Little Rock
 Dr. Joseph F. Shuffield, Little Rock
 Dr. H. T. Smith, McGehee
 Dr. James R. Williams, Siloam Springs
 The Memorial Address was made by Dr. John
 H. Miller of Camden.

MEMORIAL ADDRESS

John H. Miller, M.D.

Death is never a pleasant subject; it is one enemy which mankind has never conquered. The nearest we have come to finding an answer in this area is our faith in God and a life after death. In most all our Medical circles we deal in material things and at death we come to an abrupt end of all that we have been dealing with. Faith cannot be measured, weighed, or calibrated by our usual laboratory procedures. However, for those of us who have found God, faith has become a vital part of our daily activity.

Man is more than physical, in fact, he is more than physical and mental. He is also spiritual. As a spiritual being the end of this life is simply the time of transformation of his spirit to its more eternal existence. Some think of heaven as a type of etherical existence, but there is plenty of reason to believe it is going to be a genuinely real and happy place.

The thought immediately before us is the life which was lived by those who have so recently departed from us. I think of one who visited in my home a number of years ago and the words of encouragement he had for me as a young physician. A few days after his untimely death I was re-reading a letter he had written in appreciation of the invitation to be in our home and speak before our county medical society. I shall always treasure his letter and, strangely enough, it means so much more since he has gone from this life.

Let us reflect farther on some of the ideals which we found in the lives of our departed

friends. I believe by thus doing that we will find strength for the task which lies before.

There is one main rule in the practice of medicine, namely, that the good of the patient must come first. It seems to be increasingly so that so much of our medical and paramedical activities are set up for the convenience of the personnel. So much is done for the economic security of our hospitals, for the convenience of the nursing staff, for the many technicians, yes, even for the cafeteria workers, laundry help, maintenance crews and janitors. They all come in for their share. If we are not careful, our office routines are geared in order to see how many patients we can run through in the least amount of time. We are swamped with people wanting physical examinations in hope of being placed on the welfare rolls or qualification for social security due to disability. Then there is the patient needing our statement that he deserves to receive commodities from the County Judge. In face of all this can we meet each day with the goal in mind of doing whatever service we can to every possible person? We have no other worthy goal. This might be easier except for the fact that some of our time must be reserved for the sick. Most of us see minor illnesses and emotional problems mixed in with our critically ill people.

The complex problems before the medical profession stagger our imaginations. How can we press for even higher professional standards and try to maintain a genuine concern for each patient as an individual in this time of increased demand for our time and energy from the many faceted programs of government spending? None of these who have so recently passed from among us lived perfect lives. However, if we but pause and remember, we will know things they did and attitudes they assumed which should be valuable teachers for us in this day.

One area in which we are lacking is that of community leadership. Leadership is never an easy role to assume. Leaders are often criticized and often have to pay in their attempts to help other people. We speak often of our public image and bemoan the fact that we physicians are not held in high esteem as the doctor of a few years past. Our image is apt to worsen unless we are able to assume a place of community leadership along with other professional and business people. The many government agencies and programs which are on the horizon make this a fact.

For a good many years there has supposedly



Dr. J. H. McCurry of Cash (center) was honored by the Society for his many years of work with the Fifty Year Clubs. A plaque from the Arkansas Medical Society was presented to Dr. McCurry by Dr. Davis W. Goldstein of Fort Smith (left) who is currently president of the Fifty Year Club of American Medicine. Dr. C. Lewis Hvatt, president of the Society, is at right.

been a conflict between medicine and religion. I say supposedly, because to many of us there has been no conflict at all. Religion, it is true, has gone off into one camp and medicine into another. The different groups use phraseology which is often confusing to the other. There are many evidences that the gap between religion and medicine is narrowing. There is great hope that ministers and physicians will learn how to discuss the ills of the total man. Both medicine and religion are beginning to accept the wholistic approach to man's needs which sees the individual as mind, body, and soul. Only in this context will we physicians be able to intelligently discuss the needs of our patients with their ministers. Here again we need to assert ourselves as leaders which truly we are, at least, while our people are confined to the hospitals. It is our responsibility to illicit the help of the minister and try every way we can to understand what he is trying to do for the patient. There need be no conflict with our physicians and ministers if we all accept the wholistic approach to men's ills and unequivocally put the needs of the patient first.

Concern is a lost word in our way of life. Concern for ones self and his immediate loved ones is one thing and concern for the needs of others is indeed another. It is human to be selfish; it is godly to be concerned. Who is in a better position than the medical doctor to show this benighted generation what it means to be concerned for the needs of others? To be concerned will mean that I will practice the highest possible type of medicine. I will never put selfish gain ahead of what is good for my patients. Concern embodies the care of people irrespective of their ability to pay. It

embodies consultation when it is for the welfare of the patient. Concern is easy to recognize but it is hard to put into practice. Ultimately, love is the only adequate motive for all of our human relationships.

After two thousand years there is still no more up to date example for us doctors to pattern after than that of the Good Samaritan. He showed concern for one of another race. As you may remember, the Samaritans were considered as barbarians by the Jews. Before the Samaritan came by, the wounded man had been passed up by two of his same race who were in haste to go about their religious activities. As is so common today, they did not want to become involved and it really wasn't their fault or concern that this man was in trouble. The secret here is that when the Samaritan saw him bleeding and half dead that he had compassion for him. He poured in his own healing oil and used his own emergency bandages to give him first aid until he could get him to the wayside hospital. Not only did he stay up with him most or all of the night but when he left the next morning he paid his bill. Furthermore, he commissioned the inn-keeper to continue his care and that on his return he would pay the balance due. It might also be noted that the man did not have hospital insurance. It is true that this illustration is rather extreme but it helps make clear that the compassion this man felt in his heart made a difference in his attitude and actions toward a man in desperate need.

There are no perfect men among us. None whom we honor today lived perfect lives. However, as we return to our offices and hospital corridors let us remember that the way of concern,

compassion, yes, even love, is the only course which will ultimately be victorious.

Following the Memorial Address, Mrs. Ronald J. Bracken of Hot Springs sang. Benediction was by Dr. Henker.

PRESIDENT'S BANQUET

The Annual President's Banquet was held on Tuesday, May 3rd, in the Main Dining Room of the Arlington Hotel with the Society president, C. Lewis Hyatt, presiding.

President Hyatt introduced those seated at the head table, as follows: Chairman of the Council H. W. Thomas and Mrs. Thomas, Secretary Elvin Shuffield and Mrs. Shuffield; President-elect L. A. Whittaker, Jr., and Mrs. Whittaker; Chairman of the Annual Session Arrangements Committee John Busby and Mrs. Busby, and Mrs. Hyatt.

President Hyatt also introduced the following special guests: Mrs. John McCollough Smith, president of the Woman's Auxiliary to the Arkansas Medical Society; Mrs. Charles F. Wilkins, Jr., immediate past president of the Woman's Aux-

iliary to the Arkansas Medical Society; Mrs. Art B. Martin, president-elect of the Woman's Auxiliary to the Arkansas Medical Society; Mrs. Robbie Nichols, president of the Arkansas State Medical Assistants Society; Mrs. Helen Cameron, immediate past president of the Arkansas State Medical Assistants Society; and Mr. Jerry Mann, president of the Arkansas Chapter of the Student American Medical Association.

President Hyatt called on Dr. Thomas E. Burrow, chairman of the Golf Tournament Committee, to present the awards to the top winners. Medalist honors went to Dr. W. G. Klugh, Jr., of Hot Springs; W. E. King of Russellville won second place and H. D. Langston won third place.

Mr. J. F. Thompson, Memphis Branch Manager for Parke, Davis and Company, presented to the Society four framed "History of Medicine" pictures in observance of the 100th anniversary of the Parke Davis firm.

The chairman of the Scientific Exhibits, Dr. J. Harry Hayes, announced that the scientific ex-



President's Banquet, Tuesday, May 3rd. Seated at the head table are (right to left): Secretary Elvin Shuffield, Mrs. Shuffield, President-elect Whittaker, Mrs. Whittaker, President C. Lewis Hyatt, Mrs. Hyatt, Chairman of the Council H. W. Thomas, Mrs. Thomas, and Chairman of the Annual Session Committee John V. Busby.

Special guests at tables in the foreground are (at right) Mrs. Robbie Nichols, president of the Arkansas State Medical Assistants Society (left foreground, reading from left to right) Mrs. Charles F. Wilkins, immediate past president of the Woman's Auxiliary to the Arkansas Medical Society, Dr. Wilkins, Dr. Art Martin, Mrs. Jerry Mann, Mr. Jerry Mann, president of the Arkansas Chapter of the Student American Medical Association; Mrs. Art Martin, president-elect of the Woman's Auxiliary to the Arkansas Medical Society; Dr. John McCollough Smith and Mrs. Smith, president of the Woman's Auxiliary to the Arkansas Medical Society.



President C. Lewis Hyatt makes his address to the membership. Monday, May 2, Ballroom, Arlington Hotel.

hibit entitled "Roentgenographic Examination of the Ear" by Drs. Scruggs, Langston, Bearden, Lane, and Brenner had been selected for the Aesculapius Award. A certificate and cash award from Mead Johnson Laboratories was presented to a representative of the group.

President Hyatt called on D. W. Goldstein, president of the Fifty Year Club of American Medicine, to present a special award to Dr. J. H. McCurry of Cash, Arkansas. Dr. McCurry was given a plaque with the following inscription: "Award of Appreciation presented to Dr. J. H. McCurry for his untiring efforts on behalf of the Fifty Year Club, his faithful service as secretary of his county medical society for more than

twenty-six years, and for his unselfish and inspiring devotion to the profession during his sixty-nine years of medical practice. Arkansas Medical Society May 3, 1966". In accepting the plaque, Dr. McCurry made the following remarks:

"I wish to express my thanks and appreciation to all the splendid members and officers of the Arkansas Medical Society for this most appreciated demonstration here tonight, and to the State Board of Health for honoring me. I sincerely appreciate their remembrance. It is not often that a doctor who has carried "The Little Black Bag" for more than 69 years gets a double portion of praise and honor from two distinct sources, but I feel that I have doubly

received same. To both organizations I sincerely say that words can never truly give expressions to feelings, especially when the feeling is heartfelt and deeply inspired by grateful recognition of so many warm friends. The gratitude I feel is so genuine and sincere and I am so very thankful for so much that I owe to so many. I can only with deep humility and appreciation say 'thank you one and all, very very much'. It is truly amazing how helpful we can be to others, as you have been to me. Again I truly thank you for the many things you have done for me to make this one of the greatest honors I have received. Enjoy each day for what it brings, and remember the past with pleasure".

President Hyatt then introduced Dr. W. H. Mock of Prairie Grove, who has practiced medicine for seventy-two years. Dr. Mock spoke briefly relating his experiences and philosophy.

On behalf of the American Medical Association and Research Foundation, Dr. Hyatt presented a check for \$6,444.73 to Winston K. Shorey, Dean of the University of Arkansas School of Medicine. The AMA-ERF contribution may be used by the Medical School for special projects or expenses outside its budget.

Dr. Robert Watson, president of the Board of Directors of the Medical Education Foundation for Arkansas, presented a check for \$6,500 for use in a federal matching fund student loan program which will make \$65,000 available to Arkansas students.

Dr. Shorey then reported to the Society on the status of the Memorial Fund established last year by Dr. C. Lewis Hyatt in memory of his brother, Dr. Robert F. Hyatt, Jr.

Dr. Hyatt made brief remarks concerning his year as president, expressing his thanks to the members of the Executive Committee, other officers, and committee chairman who worked with him. He also expressed his appreciation of the efforts of Mr. Schaefer and Miss Richmond in the headquarters offices.

Dr. Hyatt then requested all past presidents in attendance to go to the seats arranged for them near the platform for the installation ceremony. The following past presidents of the Society were present and were introduced: W. H. Mock, H. King Wade, Jr., Euclid M. Smith, James M. Kolb, Sr., William A. Snodgrass, H. King Wade, Jr.,

Joe Verser, C. R. Ellis and T. Duel Brown.

At the request of Dr. Hyatt, James M. Kolb, Sr., and Elvin Shuffield escorted president-elect L. A. Whittaker to the rostrum and the oath of office of the president of the Arkansas Medical Society was administered by Dr. Hyatt. Dr. Whittaker made the following remarks in accepting the presidency:

"Many of our citizens have an attitude so well depicted by a cartoon which shows a group of people lined up before an unemployment compensation office. One man in the line says, 'It frightens me sometimes when I realize that this administration, with its fiscal irresponsibility, is my sole means of support'".

During my tenure of office, I want to present my R.I.P. plan. These letters stand for Responsibility, Interest, and Political action.

We surely have a responsibility to our patients. Our paramount interest must be in caring for people, this is a responsibility that we must not and cannot shirk. We should continue to offer our patients the best possible medical care that we are capable of providing. And this should be done regardless of the intervention of a third party or a fiscal intermediary. I believe that we also have a responsibility to the people over 65 to help explain to them the Medicare law, how it works and help give them the best advice we are capable of, even though we oppose intervention of the Federal Government in the practice of medicine.

Next, I believe that we must take an Interest in our civic responsibilities in our home towns, our own counties, and our state as well as in our own nation. If we display an apathy toward the civic activities of our city, our religion and our schools, then these institutions that sorely need the advice and guidance that we as physicians are capable of providing will suffer in proportion to our indifference.

I would urge each and every one of you to take a much greater interest in our medical society.

Our State Medical Society can be no stronger than the total support offered by all of the members. If you display a lack of interest in our medical society and are indifferent to the action and the policies that are promulgated by the Society, then we will be weaker by the lack of interest shown by every member who

refuses to participate in the activities of our medical society.

The third letter is represented by Political action. This is a field that is almost untouched by the physicians of our State, and I believe that we must take greater activity in the election of the officials who make the laws under which we must live. It is most urgent that the representatives in our State Government as well as those in the Federal Government be people who have a more conservative outlook, because the social planners in Washington have a running start at converting our freedoms to a socialistic form of government, and unless you and I and all of our people show a greater interest in the quality of our representatives, then the laws that control our business and our lives will be perverted to the socialistic trend that is obvious with the passage of the Medicare law.

If we, as citizens as well as physicians, fail to exercise our selection of representatives, then political action through organized medicine may become a dead issue, and on the headstone that is placed over our grave these words may well be inscribed: "A government that is strong enough to give you everything you want, is powerful enough to take away everything you have".

President Whittaker then presented a plaque of appreciation from the Society to Dr. Hyatt in recognition of his services as president during the past year.

President Whittaker thanked those present and announced the conclusion of the program.

FINAL MEETING HOUSE OF DELEGATES

Speaker J. P. Price called the House of Delegates to order at 10:00 a.m. on Wednesday, May 4th, 1966, in the Fountain Room of the Arlington Hotel. He called on the president of the Society, L. A. Whittaker, for the invocation.

Secretary Shuffield called the roll of delegates. The following delegates, officers, and members seated as delegates by action of the House were present:

ARKANSAS, R. H. Whitehead; BAXTER, John F. Guenther; BENTON, W. E. Jennings; BOONE, Henry V. Kirby; BRADLEY, George F. Wynne; CLARK, H. D. Luck; CRAIGHEAD-POINSETT, J. B. Kirkley; Joe Verser; CRAWFORD, M. C. Edds; CRITTENDEN, David H. Pontius; DESHA, J. H. Hellums; DREW, Paul A. Wallick; FRANKLIN, David L. Gibbons; GREENE-CLAY,



Dr. W. H. Mock of Prairie Grove spoke briefly at the President's Banquet on Tuesday, May 3rd, regarding his 72 years of medical practice.

O. E. Bradsher; HEMPSTEAD, James W. Branch; HOT SPRING, C. R. Ellis; HOWARD-PIKE, M. H. Wilmoth; INDEPENDENCE, Jim E. Lytle; JEFFERSON, Ross E. Maynard, R. R. Wooley; JOHNSON, James M. Kolb, Sr.; LEE, E. C. Fields; LITTLE RIVER, James D. Armstrong; LOGAN, R. R. Robins; MILLER, Karlton Kemp; MISSISSIPPI, F. E. Utley; OUACHITA, James Guthrie; POPE-YELL, Charles F. Wilkins, Gene D. Ring; PULASKI, F. R. Buchanan, Alan Cazort, Harry Hayes, Thomas Jansen, Winston Shorey, Amail Chudy, J. T. Herron, James Morrison, J. L. Smith, Robert Watson, William Snodgrass, Gilbert Dean; RANDOLPH, M. A. Baltz; SEARCY, John H. Williams; SEBASTIAN, S. W. Hawkins, R. C. Goodman, W. B. Stanton, A. C. Bradford; UNION, Kenneth R. Duzan; WASHINGTON, J. Warren Murry, Carie D. Buckley, Morris Henry; COUNCILORS Eldon Fairley, High Edwards, Paul Gray, L. J. Pat Bell, H. W. Thomas, T. E. Townsend, John P. Wood, Karlton Kemp, Jack Kennedy, Joseph Norton, W. Payton Kolb, Ross Fowler, Stanley Applegate, A. S. Koenig, C. C. Long, President L. A. Whittaker, Speaker J. P. Price, Secretary Elvin Shuffield, Treasurer Ben Saltzman, Past Presidents C. Lewis Hyatt, Joe Verser, W. A. Snodgrass, C. R. Ellis, W. H. Mock, James M. Kolb, Sr.

The Speaker declared a quorum present.

James R. Morrison, chairman of the Nominating Committee, presented the following proposed slate of officers:

For president-elect:

Joseph A. Norton, Little Rock



Dr. Joseph A. Norton of Little Rock, president-elect of the Arkansas Medical Society. Elected at House of Delegates meeting on May 4th.

C. R. Ellis, Malvern

For First Vice President: Art B. Martin, Fort Smith
For Second Vice President: Berry L. Moore, Jr., El Dorado
For Third Vice President: David H. Pontius, West Memphis
For Treasurer: Ben N. Saltzman, Mountain Home
For Secretary: Elvin Shuffield, Little Rock
For Speaker of the House of Delegates: John P. Price, Monticello
For Vice Speaker of the House of Delegates: Louis Hundley, Pine Bluff; Amail Chudy, North Little Rock
For Councilors:
First District: Bascom P. Raney, Jonesboro
Second District: Hugh R. Edwards, Searcy
Third District: L. J. Pat Bell, Helena

Fourth District: H. W. Thomas, Dermott
Fifth District: Paul Sizemore, Magnolia
Sixth District: John P. Wood, Mena
Seventh District: Robert McCrary, Hot Springs
Eighth District: James R. Morrison, Little Rock
Ninth District: Ross Fowler, Harrison
Tenth District: A. S. Koenig, Fort Smith
For Delegate to AMA (term from January 1, 1967 through December 31, 1968):
James M. Kolb, Sr., Clarksville
C. C. Long, Ozark
For Alternate Delegate to the AMA:
T. E. Townsend, Pine Bluff
For Member-at-Large position on the Arkansas State Medical Board:
Stanley Applegate, Springdale



The gavel, symbol of the office of president of the Arkansas Medical Society, passes from C. Lewis Hyatt to L. A. Whittaker, Jr. President's Banquet, Tuesday, May 4.

C. R. Ellis requested that his name be withdrawn and moved that Joe Norton be elected president-elect by acclamation. Motion carried.

Speaker Price called for nominations from the floor. Kemp moved, second by Koenig, that nominations be closed for all positions except alternate delegate to the American Medical Association. Motion carried.

Councilor J. W. Kennedy pointed out that the Constitution specifies that a physician cannot be elected as an officer of the Society unless he is present at the meeting at which the election is held. Counsel Warren read the appropriate section of the Constitution. Upon motion of Morrison and Wood, the name of Louis Hundley was removed from the list of nominees for vice speaker.

Upon motion of Kennedy and Wood, the House voted to re-open nominations for the position of vice speaker. C. Lewis Hyatt was nominated by J. W. Kennedy. Dr. Hyatt requested that his name be withdrawn. Upon motion of Koenig and Kemp, nominations were closed for the position of vice speaker.

In view of the withdrawal of C. R. Ellis and ruling that Louis K. Hundley was ineligible for the office of vice speaker, A. S. Koenig moved that, with the exception of the positions of delegate and alternate delegate to AMA, a unanimous vote be cast for the slate of officers as presented by the nominating committee. Second by Kemp,

motion carried.

A. S. Koenig, C. R. Ellis, Morriss Henry, and J. W. Kennedy spoke on behalf of James M. Kolb, Sr., as a nominee for the position of delegate to the AMA.

Upon motion of Koenig and Ellis, the House voted to cast ballots on the nominations for the position of delegate before taking up nominations for the alternate delegate position. Kemp, Wallick, and Bradsher were named tellers and ballots were distributed. Upon receiving the tellers report, the chair declared that James M. Kolb, Sr., had been elected to the position of AMA delegate.

Speaker Price then called for nominations for the position of alternate delegate to the AMA. C. C. Long was nominated by A. S. Koenig. T. E. Townsend requested that his name be withdrawn and that C. C. Long be elected to the position of alternate delegate by acclamation. Second by Koenig, motion carried.

Speaker Price requested that the new president-elect, Joe Norton, be recognized. Dr. Norton spoke briefly thanking the members of the House of Delegates for the honor bestowed upon him.

Speaker Price called for reports from the Reference Committees. C. R. Ellis presented the following report as chairman of Reference Committee Number One.

REPORT OF REFERENCE COMMITTEE NO. 1

Reference Committee No. 1 desires to make the following report. We respectfully request that each item reported by this Committee be passed upon before proceeding to the



The House of Delegates of the Arkansas Medical Society in session for the final meeting of the 1966 convention, Wednesday, May 4. Fountain Room, Arlington Hotel.

next item on our agenda.

1. The first item studied by this Committee was the report of the Sub-Committee on State Health and Medical Resources for Civil Defense. This is found on page 471, left-hand column, March 1966 issue, Journal of the Arkansas Medical Society. Your committee noted with interest the sub-title that is given here—simply "Apathy". It is evident, we think, to all members of our Society that this is one of our greatest handicaps. This is true not only in the work of this committee and many other committees but also in the work of the Society in general. After having read this committee report and accounts of disasters, even though somewhat minor, over the State of Arkansas in the last two years, some of them written by medical personnel, it is the hope of this committee that some disaster plan will be set up in every city, regardless of size, in our State. We hope that these committees are headed by medical personnel so that the best possible plan may be worked out for taking care of the injuries during any disaster that might happen in the State. It is regrettable that no one on this committee was able to attend the meeting in Chicago in the Fall of 1965 even though the money was made available by your Council of the Arkansas Medical Society. Mr. Speaker, your Reference Committee commends this committee report and recommends its adoption along with its recommendations. Mr. Speaker, I move the adoption of this section of the report. The House voted to approve this section of the Refer-

ence Committee report.

2. Your Reference Committee next considered the report of the Annual Session Committee, a brief report which is found on page 471 of the March 1966 issue of the Journal of the Arkansas Medical Society, the right hand column. The remainder of the report of this committee, the program itself, is printed in this issue of the Journal, pages 453 to 466. We approve this report and commend the Annual Session Committee for arranging a good program with diversification of interests so that each member of our Society might find interesting subjects being discussed at almost any time he desires to participate in the scientific meetings. We do find, in some instances, a special Society group meeting at the same time of the general sessions. We hope that, for the general good of the Society, these conflicts are held at a minimum and are always worked out with full agreement with the general Annual Session Committee. We would like to call attention to the scientific exhibits displays provided for our meeting this year and express the gratitude of our Society to those who participated in this endeavor. We hope that the award given by the Mead Johnson Company stimulates the scientific exhibits even further. We also commend and express our thanks to the technical exhibitors for giving us their interest and assistance in this Annual Session. Mr. Speaker, I move the adoption of this section of the report. The House so voted.
3. Your Reference Committee next considered the report of the Committee on Veterans Administration Affairs



Twelve outstanding scientific exhibits were on display in the mezzanine lobby area of the Arlington Hotel during the Society's convention. A great deal of interest in the exhibits was demonstrated by those in attendance.

found on page 471 of the March 1966 issue of the *Journal of the Arkansas Medical Society*, right hand column. We could not help but note again the lack of interest as expressed in the attendance at this Committee meeting which was held on the day of the meeting of all officers and committee members in Little Rock last September. Although no official action could be taken because of the lack of a quorum present at this Committee meeting, your Reference Committee approves the two recommendations made by these two members present. It is the thought of this Committee that closer liaison between the local medical society and the Veterans Administration staffs will bring about a better understanding between the two groups. Although there is some encroachment of the Veterans Administration upon the private practice of medicine, this apparently cannot be stopped by the medical profession alone; therefore, it behooves us to be more free with the information between the Veterans Administration physician and the local physician in order to provide better and more continuous care for the patient. Mr. Speaker, I move the adoption of this section of the report. The House voted approval.

4. Your Reference Committee next considered the report of the Committee on the Senior Medical Day. This report is found on Page 476 of the March 1966 issue of the *Journal of the Arkansas Medical Society*, right hand column. Your Committee believes that this is one of the best gestures toward the graduates of the University of Arkansas Medical Center, and recommends that it be continued. Your chairman of the Reference Committee attended the Senior Medical Day banquet this year and found it quite interesting. It was enthusiastically attended by the medical school seniors, but few of our own members were present. We recommend that this activity be continued. Mr. Speaker, I move the adoption of this section of the Committee's report. The House so voted.
5. Your Reference Committee next considered the report of the H.I.P. Committee as given on page 477 of the March 1966 issue of the *Journal of the Arkansas Medical Society*, right hand column. We approve this report and recommend that this H.I.P. Committee be given even more encouragement. It is in the discussions among representatives of the hospitals, insurance carriers, and the physicians that we can best work out

our problems to the advantage and best care of the patient with the least possible government interference. Mr. Speaker, I move the adoption of this section of your Reference Committee's report. The House voted approval.

6. Your reference Committee next considered a report of our president, Dr. C. Lewis Hyatt, found on page 478, right hand column, of the March 1966 issue of the *Journal of the Arkansas Medical Society*. We commend Dr. Hyatt for his many activities this year in the interest of our organization. We heartily approve the Officers' Conference as held in September of 1965 and recommend that it be repeated year after year. We note with interest, also, the report of the Speakers' Bureau of our Society. We have personally known of a number of talks being made by members of our Society over the State. This, we believe, will increase our public image greatly, especially if continued over a long period of time. We commend the officers of our Society for having called the delegates of our Society together on two occasions during the past year for consideration of special problems concerned with the Medicare program. Although the Medicare program has many apparent defects, your Committee hopes that each individual physician finds his place in the continued care of the people of our State sixty-five years of age and older. Your Committee notes with interest the paragraph on the Liaison with the Welfare Commission of the State of Arkansas. We recommend that our Society immediately set realistic fees and standard operating procedures required to take proper care of people on this program so that it may carry over into Title 19 of the Medicare Law as passed in 1965. This Committee urgently requests our Society to declare its position of requiring the usual and customary fee schedule to be paid for these patients. Our retiring president has noted, and rightly so, the large amount of work done by a few people within our organization. Your Committee appreciates his remarks in his final paragraph and commends him for stating his views. We have a great profession. Let us uphold its heritage. Mr. Speaker, I move the adoption of this section of your Reference Committee's report. The House voted its approval of this section of the report.
7. Your Reference Committee next considered the report of the Budget Committee beginning on page 475 of the March 1966 issue of the *Journal of the Arkansas Medical Society*. Since we had no questions concerning the report of this committee and no questions were asked during the Reference Committee hearings, we approve the work of this Budget Committee and commend them for their work. Mr. Speaker, I move the approval of this part of your Committee's report. The House so voted.
8. Your committee next considered the report of the Committee on Hospitals on page 482 of the March 1966 issue of the *Journal of the Arkansas Medical Society*. It is the thinking of this Reference Committee that the Committee on Hospitals possibly should include a wider range of emphasis in its study than just the emergency room and ambulance service. We notice that the program of work for this committee is still being formulated and hope that they will broaden their scope of interest beyond the above-mentioned fields. Mr. Speaker, I move the adoption of this section of the Reference Committee's report. The House voted approval.
9. Your Reference Committee next considered the report of the Constitutional Revisions Committee beginning on page 472 of the March 1966 issue of the *Journal*

of the Arkansas Medical Society. As most of you know, the changes suggested here in the constitution of the Arkansas Medical Society concern the establishment of a provisional membership requiring attendance at an orientation course during the one year of its duration. At the end of this one year, a board of censors was to recommend disapproval or approval for the provisional member then to be made an active member of a component county chapter of our Society.

There was much discussion of this constitutional change, most of this coming from the larger component societies. Some of the objections to the provisions were as listed below:

1. Some of the larger societies in our State already have a committee or a board to investigate, observe, and recommend to the Society the disposition of the applicant for membership in the Society. It was the feeling among some of the representatives of these societies that the recommended changes in the constitution did not allow the larger component societies freedom in setting up their own constitution and committee structure.
2. There was some concern about members of long standing in some county societies transferring to other county medical societies and being required to serve one year of provisional membership.
3. There was some question raised concerning the rather definite time stated in these constitution changes for the election of officers and delegates.
4. There was some question raised about the requirements for life membership as stated in the constitutional changes and which are the same as are now in our constitution, one of the physicians suggesting an honorary membership be included in our classification of memberships.

After a rather free discussion of these constitutional changes, it was generally agreed by the group of physicians at the Reference Committee hearing that we need the three following provisions in our constitutional changes:

1. A provisional membership classification for duration of about one year.
2. During the time of the provisional membership, the member must attend an orientation course offered by the county and/or State Medical Society.
3. There must be some committee or board in each component society to investigate, observe, and recommend to the component society whether to raise a provisional member to an active member or not.

In view of the aforementioned discussion and general agreements in the Reference Committee, your Reference Committee No. 1 recommends that these constitutional revisions be reworked by the Constitutional Revisions Committee with the above three recommendations included. Mr. Speaker, I move the adoption of this section of the Reference Committee's report.

10. Your Reference Committee next considered the proposed amendment to the Constitution and By-Laws as suggested in the supplemental report of the Committee on Constitutional Revisions. This report reads as follows:

To amend the By-Laws, Chapter VIII, Section I(A) by adding as committee number twelve "Committee on Area-Wide Planning";

To amend the By-Laws, Chapter VIII, by adding Section I3, which reads as follows:

"A Committee on Area-Wide Planning of Medical Facilities shall take the initiative in organizing community, district, and/or state groups for the efficient planning of new medical and hospital fa-

cilities or additions made to such existing institutions."

Your Reference Committee recommends that these changes be made in the Constitution and By-Laws setting up this committee with the above-mentioned area of endeavor.

Mr. Speaker, I move the adoption of this section of the Reference Committee's report.

The House voted approval of this section of the report.

Mr. Speaker, I move the adoption of Reference Committee Number One's report as a whole, as amended.

The House so voted.

Your Reference Committee expresses its appreciation to all members of our Society who assisted us by their discussion in our Reference Committee hearing. This is the only way we can get better participation in solving our problems. I, personally, express my sincere appreciation to the other two members of this committee—Dr. Karlton Kemp of Texarkana and Dr. Ben O. Price of Little Rock. Respectfully submitted by Reference Committee Number One of the Arkansas Medical Society, C. R. Ellis, Chairman.

The Chairman of Reference Committee Number Two, Dr. Gilbert O. Dean, presented the following report:

REPORT OF REFERENCE COMMITTEE NO. 2

Reference Committee No. 2 met at 3:30 p.m. on Sunday, May 1, 1966, and reviewed the following committee reports and resolutions:

1. Reports of the Committee on Medical Education and the Sub-Committee on Postgraduate Education. The reports were approved.

Discussions were heard in regard to the Medical Education Committee's recommendation that the functions of the Medical Education Committee, the Sub-Committee on Postgraduate Education and the Long Range Planning Committee for the Medical Center be combined into one committee function. It was pointed out that the Committee on Medical Education was designed primarily to assist the State Medical Society in obtaining information from and in giving information or assistance to the Medical School in problems regarding the training of medical students per se, whereas the Sub-Committee on Postgraduate Education was designed to facilitate solving the training problems of doctors who have finished their medical school training. The Long Range Planning Committee's functions, moreover, appeared to be directed toward assistance in solving the many future socioeconomic and political problems of the Medical Center. It appeared to be the consensus of the Reference Committee and the discussants that continued emphasis should be placed on the qualifications of the members selected for these three committees in order to obtain doctors who are especially interested in medical student education, postgraduate training or the vagaries of Medical Center planning.

Mr. Speaker, I move the adoption of this section of the Report of Reference Committee No. 2. The House voted approval.

2. Committee on Insurance. The report was approved. Mr. Speaker, I move the adoption of this Section of the report. The House so voted.
3. Committee on Liaison with the Nursing Profession. The report was approved. Mr. Speaker, I move adoption of this section of the report. The House voted approval.
4. Committee on Medicine and Religion. The report was approved. Dr. Joe Norton announced that a day-long program on Thursday, June 2, at the University of Arkansas Medical Center Auditorium was being de-

voted to pointing up the valuable medico-legal procedures and customs that are being developed and utilized throughout this Nation and world.

Mr. Speaker, I move adoption of this section of the report. The House voted approval.

5. Adjudication Committee for Blue Cross-Blue Shield. The report was approved. The possibility of most of the problems of this committee being absorbed by the 21-Man Medicare Committee was discussed but no recommendations were made. Mr. Speaker, I move adoption of this section of the report. Approval voted by House.
6. First Councilor District Professional Relations Committee. The report was approved. Second Councilor District Professional Relations Committee. The report was approved. Seventh Councilor District Professional Relations Committee. The report was approved. Mr. Speaker, I move adoption of this section of the report. The House so voted.
7. Report of the Council meeting held April 3, 1966. The report was approved. Mr. Speaker, I move adoption of this section of the report. Approval voted.
8. Union County Resolutions.

(A) Regarding insurance companies which have advised prospective Medicare recipients that their hospitalization and medical and surgical care benefits are to be cancelled with the advent of Medicare and which have encouraged the potential Medicare recipients to register for and accept all Medicare benefits. Everyone was sympathetic with the intent of this resolution. Although there were a number of discussants who spoke in favor of this resolution, the consensus appeared to be that approval of the resolution would be like beating a tired horse and that careful evaluation of the decisions already made by the Blue Cross-Blue Shield Board (that includes six Arkansas physicians) would reveal that efforts have been made and will be made in the future to make that carrier's handling and administration of Medicare as economical and as fair to the patient and the doctor as possible under existing circumstances.

Mr. Speaker, I move adoption of this section of the Reference Committee report. C. R. Ellis spoke briefly in opposition to the recommendation of the Reference Committee, and A. S. Koenig made brief remarks on behalf of Blue Cross-Blue Shield. By voice vote, the House approved the Reference Committee Report. There were two votes of opposition (C. R. Ellis and H. W. Thomas).

(B) Regarding "Individual Responsibility". This resolution was approved by the Reference Committee.

Mr. Speaker, I move adoption of this section of the Reference Committee report. Secretary Shuffield requested a reading of the resolution concerned. The resolution was read by the chairman of the Reference Committee. A. S. Koenig commented on the intent of the resolution and recommended its adoption. By voice vote, the House approved this section of the Reference Committee's report. (This action was reconsidered and rescinded later in the same meeting of the House.)

Upon motion of Dr. Dean and Dr. Koenig, the House adopted the report of Reference Committee No. 2 as a whole.

The chairman of Reference Committee Number Three, Amail Cludy, presented the following report:

REPORT OF REFERENCE COMMITTEE NO. 3

Reference Committee Number Three met in the Arlington Hotel at 3:30 p.m. on May 1, 1966, for an evaluation of the following committee reports: Committee on Cancer Control, Committee on Public Health, Sub-Committee on Rural Health and Supplemental report of the Sub-Committee on Rural Health, Sub-Committee on Mental Health, Immunization Sub-Committee, Sub-Committee on Traffic Safety, Long Range Planning Committee for the Medical Center, Speakers Bureau, Advisory Committee to the Selective Service System, and the Report of the State Medical Board. These committee reports were all accepted as read, there being no controversial subject discussed. This committee moves that the committee reports as presented be adopted. The House so voted.

The Sub-Committee on Tuberculosis Committee report by chairman Dr. Harley C. Darnall was discussed at great length in the Reference Committee. The feeling of this Reference Committee would be to change the wording of the last sentence in this report. The last sentence would read "Upon motion of Drs. Thomas and Monfort, the council approved the plan and principles with the provisions the patient should be diagnosed in a hospital before becoming eligible for home treatment"—the word "should" replaces the word "must". Another paragraph was added to this report—it reads: "In general, we agree with the resolution with the exception that we feel it should be worded such as to imply that most active tuberculosis cases should have initial hospitalization for initiation of treatment and education before becoming eligible for home treatment. We feel that every case should be individualized and the home treatment situation thoroughly investigated before any decision should be made. This decision should be made by the attending physician". This committee moves the adoption of this section of the report. The House so voted.

The report of the Auxiliary president, Mrs. Charles F. Wilkins, was read and accepted as presented. Your committee moves adoption of this section of the report.

The chairman expresses his appreciation to the members of the reference committee, Drs. Paul Sizemore and Julius H. Hellums.

Your committee moves adoption of the report as a whole as presented. The House so voted.

The chairman of the Council, H. W. Thomas, presented the following report covering meetings of the Council held during the convention:

REPORT OF THE COUNCIL

The Council of the Arkansas Medical Society met on Sunday, May 1, 1966, and transacted the following business:

1. Discussed the bill introduced by Senator Hart known as the Medical Restraint of Trade Act and decided to refer the matter to the Committee on National Legislation to inform itself and prepare to discuss the legislation with our senators at an appropriate time. The Medical Restraint Act would make it illegal for a physician to dispense drugs, eyeglasses, or any prosthesis in connection with his practice.
2. Decided to seek representation on the Advisory Committee to be appointed for the purpose of establishing a center at the University of Arkansas Medical School for the Stroke, Cancer and Heart Disease legislation recently enacted. The Council of the Arkansas Medical Society will appoint one member of the Council as a representative on the Advisory Committee.
3. Received a counter proposal from the Veterans Administration allowing a \$5 unit value based on the California Relative Value Scale for all fields of medi-

cine except surgery under the VA contract. A \$3.60 unit value was proposed for surgery. The Council voted to reject the offer and to again request a \$5 unit value for all fields.

4. Moved to rescind its action of April 3rd and approved bibliographies being published in the Journal of the Arkansas Medical Society at the discretion of the editor.
5. Voted to nominate Dr. George K. Mitchell to succeed himself on the Board of Trustees of Blue Cross-Blue Shield.
6. Approved a resolution by the Pulaski County Medical Society urging that the State Society take positive action to attempt to improve the supply of nurse personnel available for the health care of the people of Arkansas.
7. Referred to the House of Delegates with a recommendation for reference to a Reference Committee, a report of the chairman of the Sub-Committee on Mental Health. The report recommended reorganization of the care of mentally ill in the State.
8. Referred to the House of Delegates for reference to Reference Committees several resolutions presented to the Council.

The Council met on Monday and transacted the following business:

1. Decided to accept the invitation to membership of the Arkansas Interagency Council on Smoking.
2. Approved for reference to the House of Delegates the following list of members who have applied for dues exemption:

For retirement:

H. K. Carrington	B. A. Bennett	Glenn Johnson
A. J. Souter	Martha M. Brown	Grady W. Reagan
Howard Rands	Harold Miller	Frances Rothert
Jett Scott	James Nisbett	A. F. Barr
Thomas N. Black	N. W. Riegler, Sr.	H. L. Boyer
Morgan C. Berry	A. M. Washburn	Joseph Delaney
Paul Jeffery	R. M. Blakely	Jessie Stevenson
Jacob Hesterly	James D. Hayes	

For military service:

Banks Blackwell	J. F. Farmer	C. J. Little
J. M. Robinette		

For physical disability:

Daniel H. Autry	S. T. W. Cull	Bryce Cummins
Calvin Churchill	Cal D. Gunter	Evelyn Jones
James H. Scroggin		

For residency Training:

Sidney W. Arnold	H. K. Baldrige	John V. Busby
Ellery C. Gay, Jr.	Harold Hawley	Lee A. Dean
W. M. Douglas	James B. Files	M. L. Godley
William F. Hayden	A. F. Isele	Jack E. Mobley
Wayne Reynolds	James M. Kolb, Jr.	

For financial hardship:

Paul O. Wright

For life membership:

M. C. Crandall	W. A. Fowler	A. A. Gilbert
R. O. Norris	O. A. Smith	H. King Wade, Sr.
R. H. Whitehead, Sr.	J. W. Morris	C. E. Dungan

3. With reference to a discussion of the qualifications for life membership, the Council agreed that henceforth the Constitution should be interpreted as meaning that a physician who is 80 years old and has for 50 years been a member continuously of organized medicine *OR* who has continuously for 50 years been a member of organized medicine (without regard to age) shall be eligible for life membership in the Arkansas Medical Society.
4. Discussed a letter from a practicing pathologist protesting the reported establishment of branch laboratories throughout the State by the State Health Department. The Executive Vice President was directed to write

the protesting pathologist that since he had brought the matter to the attention of the Council, it would be kept under close observation for evidence of undue competition with the private practice of medicine.

The Council met on Tuesday and transacted the following business:

1. Re-appointed Dr. J. P. Williams to serve as the third district representative on the Arkansas State Arbitration Commission.
2. Authorized the Executive Committee, after consultation with the councilors from the second district, to appoint a member to the Arbitration Commission from that district.
3. Requested the councilors in the second and fourth congressional districts to complete action on nominations to the State Board of Health selections for those districts.
4. The Council voted to re-appoint Dr. Robert Watson to serve as chairman of the Board of Directors of the Medical Education Foundation for Arkansas.
5. Took cognizance of the presence of a mail-order laboratory among the exhibits at the commercial exhibits of the meeting. The selling of space to the organization was recognized as a regrettable oversight.

The Council met at 9:00 a.m. on Wednesday, May 4, and transacted the following business:

1. Considered recommendations of the Traffic Safety Committee and referred them to the Society's Committee on Legislation with a request that it report to the House of Delegates Meeting in December prior to the next meeting of the State Legislature.
2. Received a resolution from the Arkansas Psychiatric Society memorializing Dr. Joe Shuffield and directed that the resolution be presented to the House of Delegates:

WHEREAS Joe F. Shuffield, M.D., has throughout his entire medical career worked diligently, professionally and administratively, in the cause of medicine in the State of Arkansas; and

WHEREAS Dr. Shuffield in these activities has been of great help in the area of the mental health needs of Arkansas; and

WHEREAS Dr. Shuffield contributed significantly in the last years of his life as member and chairman of the Board of Control of the Arkansas State Hospital; and

WHEREAS the Arkansas Psychiatric Society as a District Branch of the American Psychiatric Association notes with deep regret the untimely passing of Dr. Shuffield; Now, therefore, be it

RESOLVED, that the Arkansas Psychiatric Society extends to the family of Dr. Shuffield its deepest sympathy at this time; and be it further

RESOLVED that a copy of this resolution be sent to the family of Dr. Shuffield, the Board of Control of the Arkansas State Hospital, the Arkansas Medical Society, and a copy be made a part of the records of the Arkansas Psychiatric Society.

Passed unanimously by the Arkansas Psychiatric Society in regular session May 3, 1966.

/s/Fred O. Henker, III, M.D.

President, Arkansas Psychiatric Society

3. Received a resolution presented by Dr. Jansen for the information of the Council.
4. Voted to present to all living past presidents plaques at the December meeting of the House of Delegates.
5. Voted to authorize the Executive Committee of the Society to arrange for and to lease suitable new space for the State Society headquarters.

Upon motion of Thomas and Edwards, the report of the Council was approved and adopted by the House of Delegates.

The Speaker then called on the chairman of the Resolutions Committee, Dr. Ben Saltzman, who presented the following resolutions:

RESOLUTION OF APPRECIATION

WHEREAS, the 90th Annual Session of the Arkansas Medical Society just completed in Hot Springs has been an outstanding success, and

WHEREAS, the management of the Arlington Hotel has facilitated our efforts in every way in providing meeting rooms, projection equipment, and otherwise assisting in arrangements for our meeting, and

WHEREAS, the Garland County Medical Society, and the individual members therefore, and the Auxiliary, have been gracious hosts, and have contributed greatly to our enjoyment, and

WHEREAS, the management of the Belvedere Country Club has been most generous in making its golf course available for the golf tournament, and

WHEREAS, the guest speakers from the University of Michigan Medical Center have added greatly to the worth of our meeting, and we have benefited from the lessons which they have shared with us, and

WHEREAS, the hours of thought devoted by the Committee on Arrangements for the Annual Session have been greatly rewarding, and have borne fruit in a program of outstanding worth, and

WHEREAS, study and other effort was given by our scientific exhibitors and the Aesculapius Award was furnished by the Mead Johnson Laboratories, resulting in exhibits that have been instructive, and were greatly enjoyed, and

WHEREAS, the commercial exhibitors were of great benefit to our gatherings and the courteous and careful attention of the attendants was quite helpful,

NOW, THEREFORE BE IT RESOLVED that the Arkansas Medical Society records its sincere appreciation, and expresses its heartfelt thanks to our host city, and those heretofore mentioned, for the cordial welcome, the extension of unbounded hospitality, the expression of good will and kindly feelings shown each member of the Society, who has been privileged to attend

this session. We shall ever hold in pleasant memory the hours spent as their guests during the last several days.

RESOLUTION RE: NEWS MEDIA

WHEREAS, the 90th Annual Session of the Arkansas Medical Society just completed in Hot Springs has been an outstanding success, and

WHEREAS, the Hot Springs Sentinel-Record, the Arkansas Gazette, the Arkansas Democrat, KARK-TV, and KTHV of Little Rock have made available to the Medical Society extended coverage of its meetings,

NOW THEREFORE BE IT RESOLVED that the House of Delegates express its thanks for the Medical Society to the news media mentioned above.

RESOLUTION RE: MEDICAL ASSISTANTS

WHEREAS, the Arkansas State Medical Assistants Society has been most kind and generous in serving coffee and doughnuts to the members and guests attending the 90th Annual Session of the Arkansas Medical Society, and

WHEREAS, the coffee bar has added much to the success of this meeting, and

WHEREAS, the medical assistants have demonstrated their support of and dedication to the purposes of organized medicine,

NOW, THEREFORE, BE IT RESOLVED that the House of Delegates of the Arkansas Medical Society express its thanks and appreciation to the Medical Assistants Society and to its representatives who have been so gracious to us during the last several days.

Upon motion of Saltzman and Kolb, all resolutions were unanimously adopted as presented.

Upon motion of Koenig and Thomas, the House voted to reconsider Resolution No. 2 as presented by the Union County Medical Society, entitled "Individual Responsibility". The speaker declared the House in Executive Session. After dissolving the Executive Session, the speaker announced that the House had voted to table the resolution.

Speaker Price announced that nominations had been made as follows for positions on the Arkansas State Board of Health:

Second District:

Ed McKnight, Brinkley

Charles Taylor, Batesville

M. C. Hawkins, Jr., Searcy

Fourth District:

Warren S. Riley, El Dorado
George F. Wynne, Warren
Paul Sizemore, Magnolia

Upon motion of Edwards and Bell, the House approved the nominations.

A delegate from Pulaski County, Gilbert Dean, extended an invitation to the Society to hold its 92nd Annual Session in Little Rock in 1968, and moved that the capital city be designated the meeting place. Upon second by James L. Smith, the House so voted.

AMA Delegate James M. Kolb, Sr., called the attention of the members of the House of Delegates to the fact that Ben N. Saltzman had recent-

ly been elected chairman of the AMA Council on Rural Health and that Joe Verser had just been named to the Board of Directors of AMPAC.

Speaker Price announced that the officers were to assemble for a group photograph immediately following the House of Delegates meeting and that the Council would hold a brief meeting.

The House adjourned at 12:00 noon.

REGISTRATION

Physicians	494
Guests	37
Exhibitors	57

Total	588

OFFICERS OF THE ARKANSAS MEDICAL SOCIETY 1966-1967

President	L. A. Whittaker, Jr., 621 South 21st, Fort Smith
President-elect	Joseph A. Norton, 8570 Cantrell Road, Little Rock
First Vice President	Art B. Martin, 1500 Dodson, Fort Smith
Second Vice President	Berry L. Moore, Jr., 1081½ North Washington, El Dorado
Third Vice President	David H. Pontius, Jr., 300 South Rhodes, West Memphis
Secretary	Elvin Shuffield, 1000 Wolfe, Little Rock
Secretary Emeritus	W. R. Brooksher, Box 3488, Station A, Fort Smith
Treasurer	Ben N. Saltzman, Mountain Home
Speaker, House of Delegates	John P. Price, Monticello
Vice Speaker of House	Amail Chudy, 1801 Maple, North Little Rock
Journal Editor	Alfred Kahn, Jr., 1300 West Sixth, Little Rock
Delegates to AMA	James M. Kolb, Clarksville; Jack Kennedy, Arkadelphia
Alternate Delegates to AMA	C. C. Long, Ozark; Alfred Kahn, Jr., Little Rock
Executive Vice President	Mr. Paul C. Schaefer, P. O. Box 1208, Fort Smith

EXECUTIVE COMMITTEE OF THE COUNCIL

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President-elect	Joseph A. Norton, 8570 Cantrell Road, Little Rock
Secretary	Elvin Shuffield, 1000 Wolfe, Little Rock

PROCEEDINGS

COUNCILORS

District	Councilor Term Expires '67	Councilor Term Expires '68	Counties in District
1.	Eldon Fairley Osceola	Bascom P. Ramey Jonesboro	Clay, Craighead, Crittenden, Fulton, Greene, Lawrence, Mississippi, Poinsett, Randolph, and Sharp
2.	Paul Gray Batesville	Hugh R. Edwards Searcy	Cleburne, Conway, Faulkner, Independence, Izard, Jackson, Stone, and White
3.	Paul Millar Stuttgart	L. J. P. Bell Helena	Arkansas, Cross, Lee, Lonoke, Monroe, Phillips, Prairie, St. Francis, and Woodruff
4.	T. E. Townsend 1310 Cherry Pine Bluff	H. W. Thomas Dermott	Ashley, Chicot, Desha, Drew, Jefferson and Lincoln
5.	George C. Burton 427 West Oak El Dorado	Paul Sizemore Magnolia	Bradley, Calhoun, Cleveland, Columbia, Dallas, Ouachita, and Union
6.	Karlton H. Kemp 408 Hazel Texarkana	John P. Wood Mena	Hempstead, Howard, LaFayette, Little River, Miller, Nevada, Pike, Polk, and Sevier
7.	Jack Kennedy Arkadelphia	Robert F. McCrary W. Grand & Barry Hot Springs	Clark, Garland, Grant, Hot Spring, Montgomery, and Saline
8.	W. Payton Kolb 1120 Marshall Little Rock	James R. Morrison St. Vincent Infirmary Little Rock	Pulaski
9.	Stanley Applegate Springdale	Ross Fowler Harrison	Baxter, Benton, Boone, Carroll, Madison, Marion, Newton, Searcy, Van Buren, and Washington
10.	C. C. Long Ozark	A. S. Koenig 922 Lexington Fort Smith	Crawford, Franklin, Johnson, Logan, Perry, Pope, Scott, Sebastian, and Yell

1966 OFFICERS — COUNTY MEDICAL SOCIETIES — ARKANSAS MEDICAL SOCIETY

ARKANSAS	Pres.—John M. Hestir, 220 W. Gibson, DeWitt Secy.—Jerry C. Holton, 509 S. Main, Stuttgart
ASHLEY	Pres.—C. E. Hicks, Hamburg Clinic, Hamburg Secy.—C. E. Ripley, Crossett Health Center, Crossett
BAXTER	Pres.—William R. Snow, Eighth and Shiras, Mountain Home Secy.—Ben N. Saltzman, 126 W. Sixth, Mountain Home
BENTON	Pres.—John A. Rollow, 211 Northeast "A", Bentonville Secy.—Donald L. Cohagen, 216 N. Main, Bentonville
BOONE	Pres.—Joe D. Bennett, Boone County Hospital, Harrison Secy.—G. Allen Robinson, 707 N. Vine, Harrison
BRADLEY	Pres.—James W. Marsh, 302 N. Main, Warren Secy.—George F. Wynne, 113 W. Cypress, Warren
CHICOT	Pres.—William J. Weaver, P. O. Box Q, Eudora Secy.—James D. Harbison, Lake Village
CLARK	Pres.—George R. Peeples, 305 E. Main, Arkadelphia Secy.—Larry G. Walker, 416 Main, Arkadelphia Executive Secy.—Mr. Howard Campbell, Clark Co. Hospital, Arkadelphia
CLEBURNE	Pres.—Jack V. Sharp, 301 West Searcy, Heber Springs Secy.—Michael E. Barnett, 4th and Spring, Heber Springs
COLUMBIA	Pres.—Charles W. Kelley, 105 W. North, Magnolia Secy.—Charles L. Weber, 110 W. North, Magnolia

PROCEEDINGS

CONWAY	Pres.—Charles F. Wells, 601 S. Moose, Morrilton Secy.—Gastor B. Owens, 601 S. Moose, Morrilton
CRAIGHEAD-POINSETT	Pres.—Donald Neblett, 826 Cobb, Jonesboro Secy.—William L. Garner, 411 E. Matthews, Jonesboro
CRAWFORD	Pres.—Ed G. Hopkins, 11th and Chestnut, Van Buren Secy.—Jack N. Thicksten, 164 Fayetteville, Alma
CRITTENDEN	Pres.—David H. Pontius, 300 S. Rhodes, West Memphis Secy.—Keith B. Kennedy, P. O. Box 833, West Memphis
CROSS	Pres.—Robert A. Hayes, 411 S. State, Wynne Secy.—Vance J. Crain, 303 E. Union, Wynne
DALLAS	Pres.—John H. Delamore, P. O. Box 351, Fordyce Secy.—H. H. Atkinson, 300 Cadiz, Fordyce
DESHA	Pres.—O. G. Blackwell, 135 W. Waterman, Dumas Secy.—Howard R. Harris, 207 S. Elm, Dumas
DREW	Pres.—C. Lewis Hyatt, 515 N. Main, Monticello Secy.—Van C. Binns, 201 East Trotter, Monticello
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GRANT	Pres.—Jack M. Irvin, 205 High, Sheridan Secy.—Miles F. Kelly, Sheridan
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INDEPENDENCE	Pres.—Bob G. Smith, North Arkansas Clinic, Batesville Secy.—Jim E. Lytle, North Arkansas Clinic, Batesville
JACKSON	Pres.—Willie R. Harris, 1205 McLain, Newport Secy.—John D. Ashley, Newport Clinic, Newport
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LAWRENCE	Pres.—Ralph Joseph, Highway 25 West, Walnut Ridge Secy.—J. B. Elders, 321 S. W. Third, Walnut Ridge
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LINCOLN	Pres.—James Freeland, P. O. Box 608, Star City Secy.—Richard C. Petty, P. O. Box 638, Star City

PROCEEDINGS

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LOGAN	Pres.—Charles H. Chalfant, 121 E. Third, Booneville Secy.—James T. Smith, 1001 N. Magazine, Paris
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MILLER	Pres.—R. M. Bransford, 401 E. Fifth, Texarkana Secy.—J. C. Burroughs, 401 E. Fifth, Texarkana Executive Secy.—Mrs. Marilyn Pryor, P. O. Box 1843, Texarkana
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PHILLIPS	Pres.—Reuben L. Chrestman, 631 Oakland, Helena Secy.—William W. Biggs, Hospital Drive, Helena
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POPE-YELL	Pres.—Douglas Lowrey, 809 W. Main, Russellville Secy.—W. E. King, 511 W. Main, Russellville
PULASKI	Pres.—Joseph D. Calhoun, 500 S. University, Little Rock Secy.—Joe B. Scruggs, Baptist Hospital, Little Rock Executive Secy.—Mr. Paul Harris, 510 Pulaski, Little Rock
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SCOTT	Pres.—Harold B. Wright, Waldron Secy.—James A. Jenkins, Waldron
SEARCY	Pres.—John H. Williams, P. O. Box 177, Marshall Secy.—John A. Hall, 327 W. Main, Clinton
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SEVIER	Pres.—R. B. Dickinson, 302 N. Fourth, DeQueen Secy.—John E. Griffin, Fifth and Gilson, DeQueen
ST. FRANCIS	Pres.—C. E. Crawley, 328 Kittel Road, Forrest City Secy.—J. Neal Laney, 328 Kittel Road, Forrest City
UNION	Pres.—Robert L. Turnbow, 306 Thompson, El Dorado Secy.—Ronald M. Lewis, 460 W. Oak, El Dorado
WASHINGTON	Pres.—Donald B. Baker, 241 W. Spring, Fayetteville Secy.—Carie D. Buckley, 241 W. Spring, Fayetteville
WHITE	Pres.—William J. Mattox, 910 E. Race, Searcy Secy.—Hugh R. Edwards, 607 Woodruff, Searcy
WOODRUFF	Pres.—F. C. Maguire, Jr., Augusta Secy.—C. E. Dungan, Augusta

Pro-Banthine[®]

(propantheline bromide)

Intragastric photography has provided a new and precise method of measuring the effectiveness of anticholinergic drugs. The transition from gastric motor activity to relaxation seen with effective doses of such drugs takes only a few seconds and is easily demonstrated.

The importance of vagal stimulation of gastric hyperacidity and hypermotility makes such measurements particularly important in evaluating the parasympatholytic effect of drugs used in patients with peptic ulcer, gastritis, biliary dyskinesia and other gastrointestinal disorders.

Pro-Banthine has been shown¹ to produce complete gastric motor inactivity with doses of 6 to 8 mg. intravenously. Comparison tests were made with the belladonna fraction, atropine. Measured usual dosage unit versus usual dosage unit, Pro-Banthine was more than four times as effective as the belladonna alkaloid.

Indications: Peptic ulcer, functional hypermotility, irritable colon, pylorospasm and biliary dyskinesia.

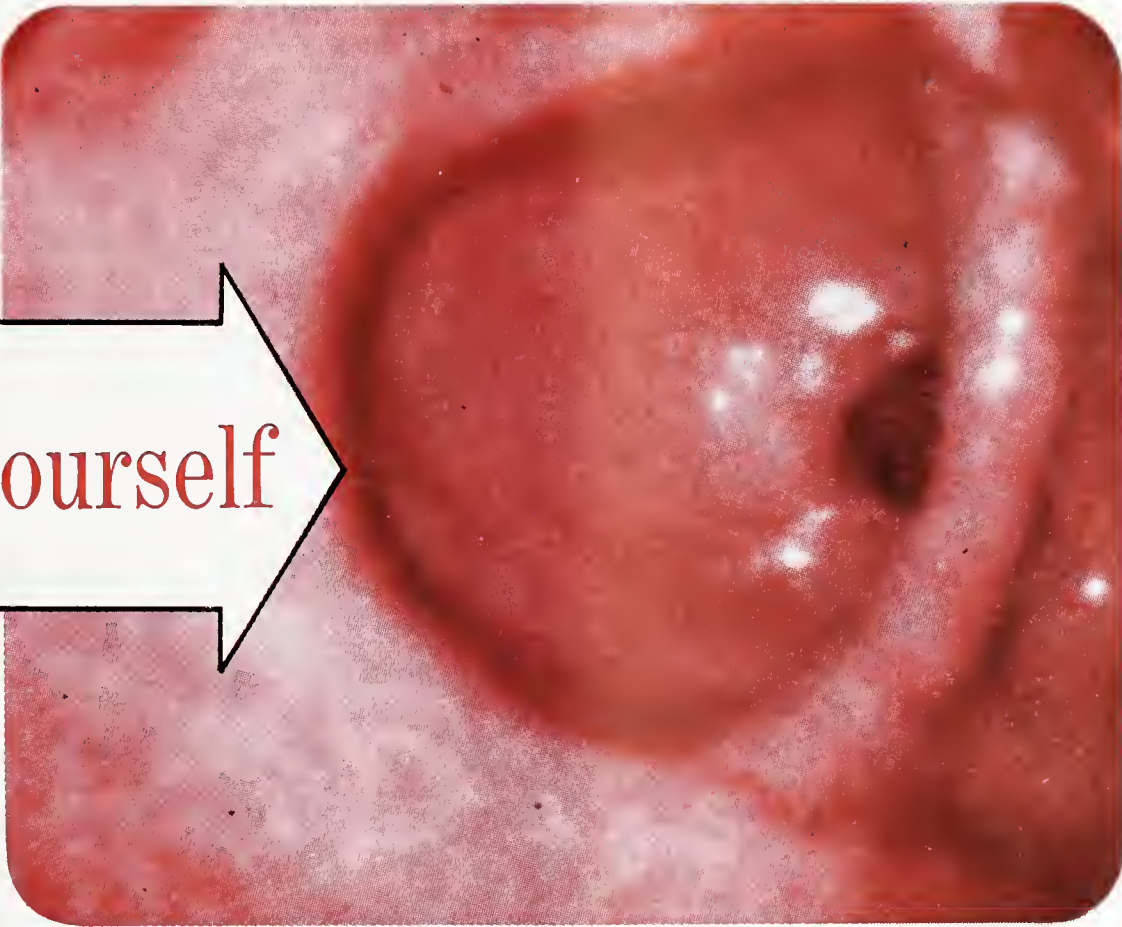
Oral Dosage: Adequate dosage should be given for optimal results. For most *adult* patients this will be four to six 15-mg. tablets daily in divided doses. In severe conditions as many as two tablets four to six times daily may be required. Pro-Banthine (brand of propantheline bromide) is supplied as tablets of 15 mg., as prolonged-acting tablets of 30 mg. and, for parenteral use, as serum-type ampuls of 30 mg.

Side Effects and Contraindications: Urinary hesitancy, xerostomia, mydriasis and, theoretically, a curare-like action may occur. Pro-Banthine is contraindicated in patients with glaucoma, severe cardiac disease and prostatic hypertrophy.

1. Barowsky, H.; Greene, L., and Paulo, D.: Cinegastroscopic Observations on the Effect of Anticholinergic and Related Drugs on Gastric and Pyloric Motor Activity, *Amer. J. Dig. Dis.* 10:506-513 (June) 1965.

See for

Is Effective



yourself

Complete gastric relaxation with Pro-Banthine. As this intragastric photograph demonstrates, gastric relaxation is attained with 6 mg. of Pro-Banthine intravenously; the antrum is relaxed and the pyloric orifice remains open. Full intravenous doses of atropine (4 mg.) produce no measurable effect.

SEARLE

Research in the Service of Medicine

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Arkansas Medical Society

1966 - 1967

COMMITTEE ON CANCER CONTROL Term Expires:

Robert K. Paul, 1525 Reed, Malvern	1967
Thomas F. Dilday, Jr., 500 South University, Little Rock, <i>CHAIRMAN</i>	1967
Julius Hellums, 129 West Waterman, Dumas	1968
J. B. Holder, 814 North Main, Monticello	1968
Edward M. Cooper, 221 East Matthews, Jonesboro	1969
Glenn P. Schoettle, 308 South Rhodes, West Memphis	1969

COMMITTEE ON MEDICAL LEGISLATION

John P. Wood, 907 Mena, Mena	1967
Paul A. Wallick, 216 South Main, Monticello	1967
C. A. Archer, Jr., 919 Locust, Conway	1967
Ross E. Maynard, National Building, Pine Bluff	1968
Neil E. Compton, Box 209, Bentonville	1968
Garland D. Murphy, Jr., 304 East Peach, El Dorado	1968
Elvin Shuffield, 1000 Wolfe, Little Rock, <i>CHAIRMAN</i>	1969
A. C. Bradford, 100 South 14th, Fort Smith	1969
William A. Snodgrass, Donaghey Building, Little Rock	1969

SUB-COMMITTEE ON NATIONAL LEGISLATION

Joe Verser, Box 106, Harrisburg	1967
Neil E. Crow, 1500 Dodson, Fort Smith	1967
George F. Wynne, 202 West Cypress, Warren	1968
Dale Alford, 115 West Capitol, Little Rock, <i>CHAIRMAN</i>	1968
Kenneth R. Duzan, 443 West Oak, El Dorado	1969
John C. Faris, 907 Union, Jonesboro	1969

COMMITTEE ON PUBLIC HEALTH (Rural Health)

Guy U. Robinson, 207 South Elm, Dumas	1967
Ben N. Saltzman, 126 West 6th, Mountain Home, <i>CHAIRMAN</i>	1967
C. C. Long, 110 West Commercial, Ozark	1968
Benjamin C. Hyatt, Community Health Center, Perryville	1968
C. A. Archer, Jr., 919 Locust, Conway	1968
Vestal B. Smith, 21 Elm Street, Marked Tree	1969
Omer E. Bradsher, 901 West Kingshighway, Paragould	1969

SUB-COMMITTEE ON LIAISON WITH THE STATE BOARD OF HEALTH

Robert W. Ross, 4316 West Markham, Little Rock	1967
H. H. Atkinson, 300 Cadiz, Fordyce	1968
Perry J. Dalton, 415 Hospital Drive, S.W., Camden	1968
Charle G. Swingle, 105 Nathan, Marked Tree	1968
Hugh R. Edwards, 607 Woodruff, Searcy, <i>CHAIRMAN</i>	1969

SUB-COMMITTEE ON MATERNAL AND CHILD WELFARE

Thomas E. Townsend, 1310 Cherry, Pine Bluff, <i>CHAIRMAN</i>	1967
James T. Rhyne, 1310 Cherry, Pine Bluff	1968
W. P. Phillips, 408 South 16th, Fort Smith	1968
Mose Smith, III, 5600 West Markham, Little Rock	1969

SUB-COMMITTEE ON TUBERCULOSIS Term Expires:

Ben M. Lincoln, 5322 West Markham, Little Rock	1967
Albert W. Lazenby, 135 West Waterman, Dumas	1967
W. Paul Reagan, State Health Building, Little Rock	1968
Charles C. Tracy, 1421 Cherry, Pine Bluff	1968
Joseph G. Shelton, Jr., Box 697, Ashdown	1968
Harley C. Darnall, 500 Lexington, Fort Smith, <i>CHAIRMAN</i>	1969
Kenneth A. Siler, 707 North Vine, Harrison	1969

SUB-COMMITTEE ON AGING

Charles F. Wilkins, 511 West Main, Russellville	1967
Paul G. Henley, 700 West Faulkner, El Dorado	1967
Van C. Binns, 201 East Trotter, Monticello	1968
John F. Guenther, 126 West 6th, Mountain Home	1968
James M. Kolb, Sr., P.O. Box 472, Clarksville, <i>CHAIRMAN</i>	1969
Don G. Howard, 110 North Clifton, Fordyce	1969

SUB-COMMITTEE ON PHYSICAL FITNESS AND SCHOOL HEALTH

Marion Jack Henry, 6213 Lee Avenue, Little Rock	1967
Gerald K. Patton, 100 North 16th, Fort Smith	1968
Edwin L. Dunaway, 919 Locust, Conway	1968
Jack W. Kennedy, 1008 Pine, Arkadelphia, <i>CHAIRMAN</i>	1969

SUB-COMMITTEE ON INDUSTRIAL HEALTH

Milton D. Deneke, 300 South Rhodes, West Memphis	1967
Hunter A. Causey, Cotton Belt Railroad Hospital, Texarkana	1968
Virgil B. Perry, 1722 West 42nd, Pine Bluff, <i>CHAIRMAN</i>	1968
Claude F. Peters, 1420 Potts, Malvern	1968
John D. Olson, 1500 Dodson, Fort Smith	1969
William L. Steele, 5520 West Markham, Little Rock	1969

SUB-COMMITTEE ON MENTAL HEALTH

W. O. Young, 112½ East 7th, Little Rock, <i>CHAIRMAN</i>	1967
Henry Hearnberger, Topeka, Kansas	1967
William H. Breit, 707 North Vine, Harrison	1967
William C. Whaley, 203 East Church, Warren	1968
Samuel D. Watson, 421 West Kingshighway, Paragould	1968
William G. Reese, 4301 West Markham, Little Rock	1969
W. Payton Kolb, 1120 Marshall, Little Rock	1969
Robert H. Whitehead, Jr., Donaghey Building, Little Rock	1969

IMMUNIZATIONS SUB-COMMITTEE:

W. W. Workman, 527 North 6th, Blytheville	1967
Harry Hayes, Jr., 500 South University, Little Rock	1967
Wilbur G. Lawson, 207 East Dickson, Fayetteville, <i>CHAIRMAN</i>	1968
Howard R. Harris, 207 South Elm, Dumas	1968
John C. Watts, 1400 South "D", Fort Smith	1969
Thomas E. Townsend, 1310 Cherry, Pine Bluff	1969

SUB-COMMITTEE ON TRAFFIC SAFETY

J. B. Cross, 500 South University, Little Rock	1967
C. E. Crawley, P.O. Box 787, Forrest City	1967
W. R. Cothorn, Crossett Health Center, Crossett	1967
Lonnie R. Turney, 2nd and Pine Streets, McGehee	1968
Louise Henry, 602 Garrison, Fort Smith, <i>CHAIRMAN</i>	1969

PROCEEDINGS

Term Expires:		Term Expires:	
James G. Stuckey, 500 South University, Little Rock		SUB-COMMITTEE ON STATE HEALTH AND MEDICAL RESOURCES FOR CIVIL DEFENSE	
1969		Quin M. Baber, 212 West Sevier, Benton	
Albert R. Hammon, 520 North Spring, Harrison		1967	
1969		Monroe D. McClain, 1120 Marshall, Little Rock, <i>CHAIRMAN</i>	
J. Warren Murry, 1749 North College, Fayetteville		1968	
1969		Edgar J. Easley, State Health Department, Little Rock	
SUB-COMMITTEE ON LIAISON WITH VOCATIONAL REHABILITATION		1968	
Frank G. Kumpuris, 415 North University, Little Rock, <i>CHAIRMAN</i>		1968	
1967		L. U. Rushing, P.O. Box 1912, Texarkana	
E. Frank Reed, Jr., 916 Cherry, Pine Bluff		1968	
1967		Russell W. Cobb, 1420 Potts, Malvern	
W. M. Hamilton, Donaghey Building, Little Rock		1968	
1967		Bedford W. Smith, 300 South Rhodes, West Memphis	
Major E. Smith, 124 East Peddicord, Dermott		1969	
1968		ADVISORY SUB-COMMITTEE TO THE MEDICAL ASSISTANTS SOCIETY	
Paul G. Henley, 700 West Faulkner, El Dorado		Willie R. Harris, 1205 McLain, Newport, <i>CHAIRMAN</i>	
1968		1967	
W. J. Stocker, Block and Dickson, Fayetteville		1968	
1968		Karlton H. Kemp, 408 Hazel, Texarkana	
U. Lee Smith, Mineral Springs Highway, Nashville		1968	
1969		John W. Dorman, Springdale Clinic, Springdale	
1969		Doris A. Baldrige, 103 North 6th, Heber Springs	
Robert H. Atkinson, 236 Central, Hot Springs		1968	
1969		Guy P. Shrigley, 416 Sevier, Clarksville	
Gaston A. Hebert, 802 Prospect Avenue, Hot Springs		1968	
1969		A. R. Clowney, 312 Thompson, El Dorado	
COMMITTEE ON MEDICAL EDUCATION		1969	
Lee B. Parker, 101 North 2nd, McGehee, <i>CHAIRMAN</i>		1967	
1967		Jerry C. Holton, 509 South Main, Stuttgart	
George K. Mitchell, 900 North University, Little Rock		1969	
1967		COMMITTEE ON ARRANGEMENTS FOR ANNUAL SESSION	
Winston K. Shorey, 4301 West Markham, Little Rock		1967	
1968		Thomas E. Townsend, 1310 Cherry, Pine Bluff	
1968		1967	
Oliver C. Raney, 1720 West 42nd, Pine Bluff		Hal R. Black, Jr., Donaghey Building, Little Rock	
1969		1967	
James W. Hawley, P.O. Box 38, Camden		1968	
1969		Anail Chudy, 1801 Maple, North Little Rock	
W. H. Calaway, North Arkansas Clinic, Batesville		1968	
1969		John V. Busby, 4301 West Markham, Little Rock	
SUB-COMMITTEE ON POSTGRADUATE EDUCATION		1968	
Eli Gary, 137 North 6th, Arkadelphia		1969	
1967		Art B. Martin, 1500 Dodson, Fort Smith	
James S. Taylor, 4301 West Markham, Little Rock		1968	
1968		Joseph S. Robinette, 1115 Cherry, Pine Bluff	
James K. Patrick, 241 West Spring, Fayetteville		1968	
1968		Betty Ann Lowe, 401 East 5th, Texarkana	
Albert R. Hammon, 520 North Spring, Harrison		1968	
1968		A. S. Koenig, 922 Lexington, Fort Smith, <i>CHAIRMAN</i>	
John T. Riffin, 4301 West Markham, Little Rock		1969	
1968		Wright Hawkins, 100 South 14th, Fort Smith	
George F. Wynne, 202 West Cypress, Warren, <i>CHAIRMAN</i>		1969	
1969		E. Z. Hornberger, 401 South 16th, Fort Smith	
COMMITTEE ON HOSPITALS		1969	
Herbert B. Wren, 4800 Loop Drive, Texarkana		COMMITTEE ON VETERANS ADMINISTRATION AFFAIRS	
1967		Rex N. Moore, 813 Marshall Road, Jacksonville	
Joseph A. Buchman, 500 South University, Little Rock, <i>CHAIRMAN</i>		1967	
1967		N. W. Riegler, Jr., 1021 Scott, Little Rock	
George B. Talbot, 1421 Cherry, Pine Bluff		1968	
1968		John H. Delamore, 1100 West 3rd, Fordyce	
John P. Wood, 907 Mena, Mena		1968	
1968		Friedman Sisco, 101 South Shilo, Springdale, <i>CHAIRMAN</i>	
Wright Hawkins, 100 South 14th, Fort Smith		1968	
1969		Preston Hathcock, Block and Dickson, Fayetteville	
M. H. Harris, 1205 McLain, Newport		1968	
1969		Chalmers S. Pool, V.A. Hospital, North Little Rock	
COMMITTEE ON PUBLIC RELATIONS		1969	
Paul L. Rogers, Box 3488, Station A, Fort Smith		COMMITTEE ON INSURANCE	
1967		Thomas D. Honeycutt, 509 Cross, Little Rock, <i>CHAIRMAN</i>	
G. Thomas Jansen, 500 South University, Little Rock, <i>CHAIRMAN</i>		1967	
1967		Howard Monroe, Mountain View	
Gordon P. Oates, 1710 West 10th, Little Rock		1967	
1968		John D. Clower, 1149 West Walnut, Rogers	
Paul A. Wallick, 216 South Main, Monticello		1968	
1968		Wayne G. Pullen, 421 West Gilson, DeQueen	
A. C. Bradford, 100 South 11th, Fort Smith		1968	
1969		Guy R. Farris, 6213 Lee Avenue, Little Rock	
Omer E. Bradsher, 901 West Kingshighway, Paragould		1969	
1969		Russell W. Cobb, 1420 Potts, Malvern	
SUB-COMMITTEE ON LIAISON WITH AUXILIARY		1969	
Joseph A. Norton, 8570 Cantrell Road, Little Rock, <i>CHAIRMAN</i>		SUB-COMMITTEE ON LIAISON WITH BLUE CROSS-BLUE SHIELD	
1967		W. T. Rainwater, 527 North 6th, Blytheville	
Winston K. Shorey, 4301 West Markham, Little Rock		1967	
1967		W. C. Whaley, 203 East Church, Warren	
Elvin Shuffield, 1000 Wolfe, Little Rock		1968	
1967		J. B. Jameson, Jr., 110 Harrison, S.W., Camden	
H. W. Thomas, 105 North Freeman, Dermott		1968	
1967		Charles W. Reid, 1113 Cherry, Pine Bluff, <i>CHAIRMAN</i>	
James M. Kolb, Sr., P.O. Box 472, Clarksville		1968	
1967		A. S. Koenig, 922 Lexington, Fort Smith	
		1969	
		Orval E. Riggs, 806 Jeter Drive, Jonesboro	
		1969	
		COMMITTEE ON LIAISON WITH THE NURSING PROFESSION	
		W. Meyers Smith, 3421 "A" Pike Street,	

	Term Expires:		Term Expires:
North Little Rock, <i>CHAIRMAN</i>	1967	MEDICAL SOCIETY REPRESENTATIVES ON	
David H. Pontius, Jr., 300 South Rhodes		HOSPITAL-INSURANCE-PHYSICIAN COMMITTEE	
West Memphis	1967	Jim E. Lytle, North Arkansas Clinic, Batesville	
A. D. Tisdale, Jr., 1515 West 42nd, Pine Bluff	1968	F. S. Van Duyn, 1204 South Buerkle, Stuttgart	
Glenn G. Hairston, 317 East 3rd, Prescott	1968	Albert W. Lazenby, 135 West Waterman, Dumas	
Robert H. Whitehead, Jr., Donaghey Building,		John H. Delamore, 1100 West Third, Fordyce	
Little Rock	1969	James W. Branch, 426 South Main, Hope	
L. L. Hubener, 201 East Main, Blytheville	1969	Thomas E. Burrow, 236 Central, Hot Springs	
COMMITTEE ON MEDICINE AND RELIGION		Guy Farris, 6213 Lee Avenue, Little Rock, <i>CHAIRMAN</i>	
Jack W. Kennedy, 1008 Pine, Arkadelphia	1967	Thomas D. Honeycutt, 509 Cross, Little Rock	
William S. Orr, Jr., 500 South University,		John W. Vinzant, 22 East Spring, Fayetteville	
Little Rock	1967		
Kenneth A. Siler, 707 North Vine, Harrison	1968	PHYSICIAN TO WORK WITH AMA COMMITTEE	
Fred Gordy, 552 Locust, Conway	1968	ON QUACKERY	
William E. Knight, 1500 Dodson, Fort Smith,		Frank M. Burton, 101 Whittington, Hot Springs	
<i>CHAIRMAN</i>	1969		
Joseph A. Norton, 8570 Cantrell Road,		ARKANSAS STATE ADVISORY COMMITTEE TO	
Little Rock	1969	THE SELECTIVE SERVICE SYSTEM	
COMMITTEE ON CONSTITUTIONAL		Joseph Ledbetter, 804 South Church, Jonesboro	
REVISION	Council Committee	Edwin L. Dunaway, 919 Locust, Conway	
C. Randolph Ellis, 1004 South Main, Malvern,		T. S. Van Duyn, 1204 South Buerkle, Stuttgart	
<i>CHAIRMAN</i>		W. A. Regnier, 115 Pine, Crossett	
Lee B. Parker, 101 North Second, McGehee		Julius H. Hellums, 129 West Waterman, Dumas	
Harry Hayes, Jr., 500 South University, Little Rock		James F. Clark, 524 West Faulkner, El Dorado	
Paul Rogers, Box 3488, Station A, Fort Smith		Gerald H. Teasley, 401 East 5th, Texarkana,	
H. King Wade, Jr., 231 Central, Hot Springs		<i>CHAIRMAN</i>	
BUDGET COMMITTEE	Council Committee	Frank Burton, 101 Whittington, Hot Springs	
W. R. Brooksher, Box 3488, Station A, Fort Smith,		John T. Herron, State Health Department, Little Rock	
<i>CHAIRMAN</i>		Robert A. Calcote, Donaghey Building, Little Rock	
H. W. Thomas, 105 North Freeman, Dermott		Ulys Jackson, 118 South Pine, Harrison	
Ben N. Saltzman, 126 West 6th, Mountain Home		Friedman Sisco, 101 South Shilo, Springdale	
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John E. Greutter, Donaghey Building, Little Rock			



MRS. JOHN MCCOLLOUGH SMITH

Little Rock

President 1966-1967

**Woman's Auxiliary to the
Arkansas Medical Society**

**Minutes of the
42nd Annual Session of the
Woman's Auxiliary
to the
ARKANSAS MEDICAL SOCIETY**

The 42nd Annual Convention of the Woman's Auxiliary to the Arkansas Medical Society was held May 1-3, 1966 at the Arlington Hotel in Hot Springs, Arkansas.

Mrs. Charles Wilkins, President, and Mrs. John M. Smith, president-elect entertained members of their respective boards at a reception Sunday afternoon May 1st.

The Convention opened with a Board meeting and breakfast Monday at 8:00 a.m. followed by the First General Session presided over by Mrs. Wilkins. Greetings and words of appreciation were extended the Auxiliary by Dr. Lewis Hyatt, President, Arkansas Medical Society and Mr. Paul Schaefer, Executive Vice President, Arkansas Medical Society.

A luncheon at the Downtowner Motel honored Mrs. John M. Chenault, Board Member, Woman's Auxiliary to the American Medical Association, who gave an address. A workshop and school of instruction for county officers and Committee Chairman conducted by Mrs. John M. Smith followed the luncheon.

The Second General Session was held Tuesday May 3rd at 9:30 a.m. Reports were heard from county auxiliaries and state officers. Officers elected for the year 1966-67 were:

President, Mrs. John M. Smith, Little Rock
President-elect, Mrs. Art B. Martin, Fort Smith
1st Vice President, Mrs. J. F. Jackson, Newport
2nd Vice President, Mrs. C. D. Burroughs, Pine Bluff
3rd Vice President, Mrs. Carl Parkerson, Hot Springs
4th Vice President, Mrs. Stephen Finch, Fayetteville



Mrs. C. C. Long of Ozark, Arkansas, addressing the banquet meeting of the Louisiana State Medical Association at its convention in Alexandria, Monday, May 2, 1966. Seated beside Mrs. Long is J. H. McKeithen, Governor of Louisiana.

Recording Secretary, Mrs. W. R. Meredith, Pine Bluff

Treasurer, Mrs. W. Myers Smith, North Little Rock

The Registration Committee reported 183 officers, delegates, and visitors to be registered.

The new officers were installed by Mrs. Mason G. Lawson at the luncheon Tuesday at the Velda Rose Towers. Awards were given for participation in the AMAERF and the Doctor's Day programs. Garland County took first place for their Doctor's Day Doctors A Go-Go.

The Auxiliary joined the Society in a Memorial Service for deceased members of both organizations.

The Convention closed with a Post-Convention Board meeting where arrangements were made for workshops to be held in each of the four districts conducted by the respective vice presidents.





STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., *Professor and Chairman*

STEWART FISH, M.D., *Editor*

THE BRENNER TUMOR

Dwayne D. Jones, M.D.*

INTRODUCTION

The Brenner tumor is a rare ovarian neoplasm and from time to time it is worthwhile considering the clinico pathologic features of such unusual entities. It is the purpose of this paper to review the literature pertaining to Brenner tumors, and to review the cases which occurred at the University of Arkansas Medical Center from 1945 to 1965. Particular attention will be paid to the clinical findings, histopathology, malignant changes, and hormone production. A total of fifteen cases have been studied.

HISTORICAL BACKGROUND

Fritz Brenner is generally given credit for the original description of the Brenner tumor in 1907. He described three cases and called them "oophoroma folliculare" because he believed that they came from the graffian follicle. The tumor was known by this name for many years. The literature shows that at least eight other authors may have been reporting the same entity prior to Brenner. They were Gottschalk, Amann, MacNaughton-Jones, Schroder, Lonnberg, Voigt, Ingier and Orthmann.

It was Meyer, in 1932, in his classic article who pointed out the difference between Brenner tumors and granulosa cell tumors and provided a guide for classification. He proposed two groups, those which occurred as solid tumors (Meyers Group A) and those which occurred in the wall of a cyst (Meyers Group B).

Doctor Brenner was unaware that the tumor

which he described, bore his name until 1955 when he was found in Johannesburg, South Africa doing general practice. This is the only ovarian neoplasm having no pathological designation other than its eponym.

HISTOPATHOLOGY

Brenner tumors vary considerably in size. Some are microscopic and some reach very large proportions. The largest Brenner tumor was reported by Auerbach et al., and weighed over 19 pounds. Grossly the tumors resemble fibromas on cut section and are grayish white, often lobulated, and in the solid variety very hard. There is little tendency toward necrosis, cystic degeneration or hemorrhage in the solid variety. No definite capsule exists although the surrounding ovarian tissue is often compressed. When a cystic Brenner tumor occurs, the spaces vary greatly in size and are filled with an opaque, viscid, yellow-brown fluid.

Microscopically the two characteristic findings are the rests of epithelial cells (Walthard rests) and the fibromatous connective tissue surrounding these groups of cells. The epithelial rests vary in size and shape and may even be branched.

Brenner tumors must be distinguished from granulosa cell tumors and metastatic squamous epitheliomas. Brenner tumors contain mucin and glycogen, whereas granulosa cell tumors contain lipid without mucin or glycogen. The absence of mitotic figures differentiates Brenner tumors from metastatic epitheliomas except in the case of malignant Brenner tumors.

MALIGNANT CHANGE

Brenner tumors were considered entirely be-

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nign until 1944. The first two conclusive cases were reported by Von Numbers. Dubrausky and Von Massenbach reported a malignant Brenner tumor in a 70-year-old woman. Novak, Dockerty and others have reported cases of malignant change. Malcom Idelson in 1963 reviewed the world literature and reported twenty-six cases of malignancy in Brenner tumors. The malignancy was classified by Idelson into four histologic forms which are as follows: squamous carcinoma, adenocarcinoma, cystadenocarcinoma and sarcoma. The large size of many of these tumors suggested malignant degeneration within a previously slow growing benign Brenner tumor since the malignancy, once diagnosed, was usually fatal in a short time. Although spread was primarily by direct extension, generalized early dissemination occurred frequently enough to contraindicate a radical surgical approach.

Novak feels that many of the case reports of adenocarcinoma, cystadenocarcinoma and sarcoma may well arise from cystic tumors which are often found in conjunction with Brenner tumors. He feels that the squamous variety of cancer arises from the Brenner tumors.

HISTOGENESIS

Varangot (1938) remarked with some truth that to explain the origin of the Brenner tumor authors have given free reign to their imagination. He justified his speculations by quoting Plaut as saying "since the process has never been photographed one can only put forward suggestions."

The most widely accepted theory is that these tumors originate from Walthard rests. This should be further sub-divided into two classes depending on whether one considers Walthards as embryonic rests or as having their origin from the epithelium of the adult ovary. This latter theory was suggested by Robert Meyer in 1932. In 1936, Meker, showed by serial sections that some of the nests of a Brenner tumor were connected by strands to the surface epithelium of the ovary. Plaut in 1943, and Arey in 1944, demonstrated a stalk-like continuity between the epithelium of the Brenner tumor and the surface epithelium of the ovary.

One of the reasons for the common acceptance of the Walthard origin is that both it and Brenner tumors exhibit cells with infolding of the nuclear membranes which produces a coffee bean shaped nuclei. In 1943 Arey reported finding such

coffee bean shaped nuclei in nearly all genital tissue along with connective tissue, smooth muscle and cartilage. Therefore, one cannot definitely say that Brenner tumors come from Walthard rests simply because of the nuclear configuration.

Schiller, in 1943, postulated that Brenner tumors originated from rete ovarii since he was able by serial sections to demonstrate a continuity between the epithelium of the tumor and the rete ovarii.

In 1952 Greene reported 18 cases in which he felt that there were four separate origins. He believed that they could arise from the rete ovarii, stroma of the ovary, germinal epithelium and pseudomucinous cystadenomas.

Novak believed the ovary to be a hotbed of differentiating potential, and that almost anything can happen in this respect and often does.

HORMONE PRODUCTION

Ming and Goldsmith reviewed the reported cases of Brenner tumor occurring in postmenopausal women in which there was an adequate description of the endometrium. In 69 patients, 32 had endometrial hyperplasia with or without carcinoma, 14 had polyps, and 6 had carcinoma only. Farrer and associates reviewed 376 cases in the literature. Of 65 cases in which the endometrium was described, he found that 28 had evidence of prolonged or excessive estrogen stimulation. Jonas described a 74-year-old patient who had had intermittent vaginal bleeding since her menopause. At operation, a cystic hyperplastic endometrium and a Brenner tumor were found. Three months after surgery endometrial biopsies showed an atrophic endometrium. Deaver described a 77-year-old patient who presented with breast enlargement and vaginal bleeding. A hyperplastic, proliferative endometrium and a Brenner tumor were found at operation. Grayzel and Friedman also reported postmenopausal breast enlargement in a patient with a Brenner tumor. Eaton reported three patients with Brenner tumors and endometrial evidence of estrogen stimulation.

More direct evidence that these tumors may synthesize steroids is presented by the report of Shaaban and Abdine. They found increased levels of estradiol, estriol and estrone in the urine of a 60-year-old woman who had a Brenner tumor and endometrial evidence of excessive estrogen stimulation.

Morris and Scully described a 24-year-old woman who became masculinized during the first trimester of her pregnancy. She was later found to have a Brenner tumor. Hawni reported a 21-year-old patient who underwent masculinization during her pregnancy. In the postpartum period she was found to have a right adnexal mass. At laparotomy a 120 gram Brenner tumor was removed. In vitro incubation of the tumor revealed that it synthesized testosterone from progesterone in the presence of human chorionic gonadotropin. In this patient's follow-up she had a regression of her masculinization.

BILATERAL BRENNER TUMORS

Of the 400 cases of Brenner tumor found in the world literature, only 7 per cent of these have been found to be bilateral. This percentage is probably higher than it should be since it is possible that a fair number of the unilateral variety are not reported. Therefore, as can be seen, bilaterality is extremely rare.

Fox reviewed the literature and reported 170 Brenner tumors. Of this number 13 were bilateral. Peale, Johnson, Dockerty, Bungard, Kendall and Bowers all reported cases of bilaterality. Farrar and Green reviewed the literature and found 27 cases of bilateral Brenner tumors and added two cases of their own. Kretchmar, Dutel and Goodale in 1961 reported two cases. In 1964 Varden reported another case and this brought the total to 32 cases. Flannagan and Race reported an interesting case of bilateral Brenner tumor coexisting with Krukenberg tumors and ovarian cystadenomas.

CLINICAL FEATURES

Incidence: A survey was made by Jondahl at the Mayo Clinic over a ten year period. About 10,000 ovarian neoplasms were found with only 17 Brenner tumors. This gave an incidence of 1.5 percent to 2 percent. Peak and Leary state that 2 percent of all solid ovarian tumors are Brenner tumors. Solid ovarian tumors account for 20 percent of all ovarian growths. Mackinley reported 9 cases in a series of 1,088 ovarian neoplasms. He found that 403 of these tumors were solid. This gave an incidence of .6 percent of all ovarian neoplasms and 2 percent of solid ovarian tumors. Von Szathmary in 1933 found an incidence of 1.45 percent. Novak in 1947 reported 19 Brenner tumors in 48,000 cases for an incidence of .04 percent.

Age: The age range includes practically all decades. The youngest case in the literature is that of a 6-year-old girl reported by Lordy and De Camargo. The oldest patient was an 81-year-old woman reported by Geissler. Jondahl in his series of 31 cases reported an age range of from 34 to 76 years. Tighe reported an age range of from 30 to 76 years with 19 of the 30 patients being in age group 40 to 59 years. Novak reported an age range of from 25 to 71 years. Meyers, Mackinlay, and Jondahl all reported that over 50 percent of their patients were over 50 years old.

Parity: Jondahl reported that 12 of his 31 patients had no children. In the other 19 there was a normal variation in their obstetrical histories. No other mention has been made of associated parity.

Menstrual History: Tighe reported that 19 of his 30 patients complained of menstrual irregularities. Five had postmenopausal bleeding and eleven had menorrhagia and/or metrorrhagia. In Jondahl's series of 30 cases, 15 had postmenopausal amenorrhea, 5 had normal periods, 5 had postmenopausal bleeding, 5 had menometrorrhagia and one had oligomenorrhea.

Symptoms: The chief complaint in Jondahl's and Tighe's series have been combined. In 22 patients the chief complaint was abdominal pain. Nineteen patients complained of an abdominal mass. Twenty-four patients complained of irregular vaginal bleeding, and ten of these were postmenopausal. The remainder of the complaints were backache, polyuria, stress incontinence, dysuria, dyspareunia and pelvic insecurity.

Pre-operative Diagnosis: In Jondahl's series the preoperative diagnosis was ovarian tumor in 5 cases, solid pelvic tumor in 7 cases, and fibroids in 6 cases. In 4 cases the diagnosis was pelvic abdominal tumor. In two cases the diagnosis was prolapse of the uterus with cystocele and rectocele. In the remainder of the 31 cases, the following diagnoses were made pre-operatively: adnexal mass with fibroids, carcinoma of the uterus, carcinoma of the cervix, carcinoma of the rectum, and radiation stricture of the rectum.

REVIEW OF THE CASES FROM THE UNIVERSITY OF ARKANSAS MEDICAL CENTER

There were fifteen Brenner tumors diagnosed at the University of Arkansas Medical Center from 1945-1965. There were no bilateral tumors and no malignant changes. A total of 570 ovarian

neoplasms were reported during this ten year period which gives an incidence of 2.6 percent in our series. Ten of the tumors fell into Meyer's group A and five were in Meyer's group B. Six patients were white and nine were Negro.

The age distribution of the patients is listed in Table I.

TABLE I
AGE DISTRIBUTION

AGE GROUP	NO. OF PTS.
30-39	4
40-49	5
50-59	2
60-69	2
70-79	2

*9 patients less than 50 yrs. old

The chief complaint of the patients is listed in Table II.

TABLE II
CHIEF COMPLAINT

COMPLAINT	NO. OF PTS.
Abdominal pain	5
Abdominal mass	4
Abdominal swelling	2
Postmenopausal bleeding	2
Metromenorrhagia	1
Abdominal pain and abdominal mass	1

Six patients gave a history of postmenopausal bleeding. Four complained of metromenorrhagia and four were postmenopausal without bleeding. Only one patient had normal menses. In these fifteen cases, eight patients were thought preoperatively to have an ovarian neoplasm. These eight were subdivided into five ovarian masses and three ovarian carcinomas. Only four patients were felt to have myomas preoperatively. The preoperative diagnosis in two cases was carcinoma of the endometrium. One patient was operated upon for elective sterilization.

Eight of our patients had a total abdominal hysterectomy with either a unilateral or a bilateral salpingo-oophorectomy. Two patients had subtotal hysterectomies plus bilateral salpingo-oophorectomy. One patient had a vaginal hysterectomy and a bilateral salpingectomy and oophorectomy. In one patient the tumor was found at autopsy. The size of the Brenner tumors varied from microscopic up to 22 cm. in diameter. Seven of our patients fell in the microscopic to 5 cm. category. The remainder of the tumors were 3 cm., 6 cm., 15 cm., and 22 cm.

The associated gynecologic pathology found in this series is listed in Table III.

TABLE III
ASSOCIATED GYNECOLOGICAL PATHOLOGY

1. Cervical	
A. Chronic Cervicitis	5
B. Squamous Metaplasia	1
2. Endometrial	
A. Polyp	2
B. Inactive	2
C. Carcinoma	1
D. Pyometria and Carcinoma	1
3. Myomas	8
4. Ovarian	
A. Simple Cyst	3
B. Pseudomucinous Cystadenoma	3
C. Fibroma	1
D. Oophoritis	1
E. Granulosa Cell	1
F. Pseudomucinous Cystadenocarcinoma	1
5. Salpinx	
A. Salpingitis	4
B. Endometriosis	1

There were only three known deaths in this series. One died of carcinoma of the breast, another died of pseudomucinous cystadenocarcinoma. The third death was in a 77-year-old woman who died of an infected ruptured pseudomucinous cystadenoma. All other patients have been lost to follow-up.

DISCUSSION

Brenner tumors are a relatively rare neoplasm of the ovary. There have been approximately 400 cases reported in the world literature. Undoubtedly many cases were overlooked or were not diagnosed before the nature of the tumor became well known. It is readily understandable that many microscopic tumors are missed at the time of pathologic examination. Our incidence of 2.6 percent closely parallels the reports in the literature. No statistically significant associated gynecological disorder could be shown in our study.

There have been a total of 32 cases of malignant change reported in the world literature. Idelson feels that there are four separate malignant pathological types, but Novak states that the only true malignant change is the squamous variety. If Novak is correct, then this would reduce the reported incidence of 8 percent malignancy. This reported percentage would undoubtedly be reduced if all Brenner tumors which occur were reported.

While it is impossible to prove the histogenesis of the Brenner tumor, several theories of origin have been put forward in this paper. The most commonly held theory is that the tumor arises from embryonic Walthard rest cells. Greene feels that there are four different origins and Novak

believes that the ovary is capable of "almost anything."

Many authors including Ming and Goldsmith have attempted to prove that Brenner tumors produce hormones. Shaaban and Abdine demonstrated increased estrogen excretion in a 60-year-old woman who had a Brenner tumor. Morris and Scully described a 24-year-old gravid patient who was virilized by a Brenner tumor. There was no definite evidence of hormone production in this series.

The 7 percent incidence of bilaterality is interesting, but may be erroneous since a significant number of unilateral tumors are not reported. This suggests that when a Brenner tumor is found in one ovary the co-existent ovary should be closely examined.

The age ranged from 6 to 81 years and was found to include all decades. Giaccone, Jondahl and others reported that over 50 percent of their patients were over 50 years old. In our series of 15 cases, nine of the patients were less than 50 and only six were over 50 years old. There was no effect of the tumor on parity.

Abnormal uterine bleeding has been present in over 25 percent of cases in several series and endometrial hyperplasia in approximately 10 percent (Morris and Scully, 1958). In the University of Arkansas Medical Center series, six patients had postmenopausal bleeding. The pathology reports demonstrated the following: two had chronic cervicitis, one had a granulosa cell tumor, one had chronic cervicitis plus an endometrial polyp plus myomas, and one had myomas with a pseudomucinous cystadenoma. One of these patients had been on hormone therapy for carcinoma of the breast. All four of the patients with metromenorrhagia were found to have myomas.

The diagnosis of Brenner tumor is generally made at pathological examination. In this series the preoperative diagnosis was ovarian neoplasm in eight, myomas in four patients, carcinoma of the endometrium in three patients, and one patient had a salpingo-oophorectomy for carcinoma of the breast. Unless the tumor is large as was the case in three of our patients, the co-existing pathology accounts for the preoperative diagnosis.

SUMMARY AND CONCLUSIONS

The literature pertaining to Brenner tumors has been reviewed along with fifteen cases from the University of Arkansas Medical Center which occurred from 1945 to 1965. The following con-

clusions are drawn from this paper:

1. The associated gynecologic pathology is that which would be seen irrespective of the Brenner tumor.
2. Brenner tumors do undergo malignant change, but none were found in our series.
3. The most widely accepted theory of histogenesis is that of origin from embryonic Walthard rest cells.
4. Brenner tumors have the potential for hormone production and should be divided into three groups which are as follows: those incapable of synthesizing biologically active steroids, those which synthesize estrogen and those which synthesize androgens; however, the incidence of hormonally active tumors is infrequent.
5. Bilateral Brenner tumors do occur but none were noted in our series.
6. The incidence varies from .6 percent to 2 percent in the literature. Our incidence was 2.6 percent.
7. Brenner tumors are found in all age groups and have no effect on parity.
8. In our series co-existent pathology accounted for menstrual aberrations.
9. The symptoms and preoperative diagnosis are generally unrelated to the Brenner tumor with the exception of large size tumors and malignant changes.

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Chloroquine Retinopathy

R. E. Carr (Ophthalmology Branch, National Institutes of Health, Bethesda, Md), P. Gouras, and R. D. Gunkel *Arch Ophthal* 75:171 (Feb) 1966

Perimetric thresholds (retinal profiles) to red and blue light were obtained at the fovea, 5°, 10°, 20°, and 30° from fixation along the vertical meridian. These studies were obtained with a modified Goldmann-Weekers adaptometer. The results obtained from a control group were compared with those of 14 patients who received chloroquine or hydroxychloroquine in doses of at least 200 mg a day for varying periods of time. A close relationship was found between the total dose of chloroquine and the perifoveal retinal threshold, with a significant elevation occurring when the total dose exceeded 100 gm. While evidence of retinal dysfunction was most evident at the fovea and at 5°, peripheral elevations were also noted when tested with red light. This test is proposed as a sensitive method of determining early retinal dysfunction attributed to chloroquine. The reversibility of early chloroquine-induced retinal changes was borne out by follow-up studies on affected patients.

Clinical Effectiveness of 6-Mercaptopurine in Bronchial Asthma

J. A. Arkins and S. R. Hirsch (Marquette University Medical School, Milwaukee) *J Allerg* 37:91-96 (Feb) 1966

Ten patients with perennial atopic and infectious asthma were given the immunosuppressant, 6-mercaptopurine and/or placebo in a double-blind study. The patients received 6-mercaptopurine and/or placebo in two consecutive courses of three weeks each. The dosage was 150 mg (2 to 2.5 mg per kg) daily. The patients were seen weekly during the study. The clinical responses were determined by measuring the amount of bronchodilators required, subjective response, and pulmonary function studies. Serum proteins, complete blood counts, platelet counts, sedimentation rates, and skin tests to inhalants were serially followed. There was improvement in both the placebo group and in those receiving 6-mercaptopurine. Analysis of the responses revealed that the changes were not statistically significant and, therefore, under the conditions of this study, no benefits could be demonstrated from 6-mercaptopurine.

TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



Clinical Manifestations of Strongyloidiasis*

James H. Bearden, M.D.**

It is the purpose of this paper to review the clinical aspects of one of the intestinal parasites. *Strongyloides stercoralis*, also known as human threadworm, can be the cause of vague abdominal pain and unexplained eosinophilia, and it is wise for the clinician to consider intestinal parasites before labeling patients with a diagnosis of functional gastrointestinal disorder.

HISTORY

Normand,³³ in 1876, first described *Strongyloides stercoralis*, in his autopsy and stool examinations of French soldiers in Cochin, China. He demonstrated the parasitic female in the glands of the mucous membrane of the duodenum, jejunum, and stomach, as well as in the pancreas and bile ducts. Normand concluded that the worm was the cause of "Cochin, China, diarrhea". Following Normand's discovery of *Strongyloides stercoralis*, the pathogenicity of this parasite occupied the attention of many authors. Grassi,¹⁶ and Monti,¹⁵ considered the helminth to be a "harmless guest". The invasiveness of the parasite was subsequently confirmed by Askanazy,¹ Von Kurlow,⁴² and Gage,¹⁴ and few now doubt the parasite's ability to invade selected host tissue and cause symptoms.

GEOGRAPHIC DISTRIBUTION AND INCIDENCE

Manson-Bahr,²⁸ stated that the helminth had a world-wide distribution, but was especially common in Brazil and Cochin, China. Actually, very little accurate data exists regarding the incidence of the parasite in various parts of the world. It is

primarily a parasite of warm climates, but it has been found sporadically in temperate and even cold regions. With our present easy access to travel, it should not be surprising to find clinical infections with *Strongyloides Stercoralis* anywhere. Faust,⁹ stated that the incidence of the infection in the clinic and hospital population in New Orleans was 4 percent, but lower in the general population of the city. Byrd,⁴ found a 0.37 percent infection rate in Athens, Georgia. Hinman,²² reported a 4.8 percent incidence in one state institution in Louisiana. Headlee and Cable,¹⁹ found a 2.7 percent infection rate among students at Berea College, Kentucky. Tanaka,⁴¹ reported a 7.4 percent incidence of infection on the Japanese island of Amami Oshima. Most et al.³¹ reported a 13 percent incidence among patients at Willowbrook State School, on Staten Island, New York. They estimated that approximately one-fourth of these patients had formerly lived in the southern United States or Puerto Rico. At present, no data are available concerning the incidence of Strongyloidiasis in general population of Arkansas. Brooke, Healy, et al.,² examined 357 stool specimens from residents of central Arkansas and did not report finding any larvae of *Strongyloides stercoralis*, however, this survey was limited to the city of Little Rock and immediate surrounding area.

LIFE CYCLE AND EPIDEMIOLOGY

The adult female worm, measuring approximately 2.5 mm. in length, lays eggs in the mucosa and sub-mucosa of the duodenum, jejunum, and occasionally ileum and stomach. These eggs

*This paper was supported by NIH Training Grant 11-AM-05314-06.

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usually hatch within the intestinal tissue, into rhabditiform larvae, which work their way to the intestinal lumen. Very few eggs are thought to reach the bowel lumen. Infrequently, the newly hatched larvae become trapped by a cellular reaction within the intestinal wall, but most rhabditiform larvae are passed in the stool. Male worms have been found in the lungs and intestinal tract, but they apparently never penetrate the mucosa of the small intestine.⁷ Male and female worms may be found together in the pulmonary bronchioles, and it is believed that insemination occurs prior to the time the female takes up residence in the small bowel mucosa. Upon reaching proper soil conditions, the rhabditiform larva may develop by one of two ways; (1) It may feed on soil debris and transform into the infective filariform larva which is capable of skin penetration, or (2) may metamorphose into either a free living male or female and produce a second generation of rhabditiform larvae. This new generation may either become infective filariform larvae or continue the free-living cycle within the soil. This free-living adaptation enhances the parasite's capacity for survival.

The remainder of the life cycle is similar to that of hookworm. The filariform larvae from the soil penetrate the skin to reach the peripheral venules, and are carried through the right side of the heart to the pulmonary capillaries, where they migrate into the alveoli. The worms then migrate up the trachea to the epiglottis and are swept down into the gastrointestinal tract. The females lodge in the crypts of the small intestine, penetrate the intestinal wall, and begin depositing eggs.

In addition, *Strongyloides stercoralis* has the ability to reinfect its host by a process called "autoinfection". Hartz and Faust,¹⁸ and De Groat,¹¹ have demonstrated filariform larvae invading the small intestine and colon of patients. They believed this to represent a transformation of the rhabditiform larvae into infective filariform larvae within the lumen of the small bowel and called it "internal autoinfection". Gage,¹³ reported larvae in the sputum of a patient who had been confined to bed for two months, suggesting that the patient was reinfecting himself. Nolasco and Africa,³² found massive invasion of the jejunum, ileum, and large intestine by filariform larvae in a patient who died because of a

paralytic ileus. These instances are additional evidence for internal auto-infection or "hyperinfection".

The infective filariform larvae can penetrate both oral rectal mucosa, but the usual route is through skin contaminated by soil with filariform larvae. Water may occasionally be a source of infection, since larvae survive well in a moist environment with a temperature of approximately 30° C.⁴¹

PATHOLOGY

Petechial hemorrhages, erythema, and urticaria have been noted at the site of skin penetration.⁸ Passage of the larvae through the walls of the alveoli may be accompanied by slight or profuse hemorrhage into the air passages. The alveoli may become filled with epithelial cells and leucocytes. Bronchial pneumonitis may be present at this point.

Intestinal lesions are located primarily in the mucosa of the duodenum, jejunum, and upper ileum; however, worms have been found at all levels from esophagus to anus, excepting the appendix. The mucosal damage is thought to result from the migration of the adult female and rhabditiform larvae through the intestinal tissue, and possibly by elaboration of a "lytic substance".²² Thus there may be a complete honeycombing of the tissues or denudation of isolated areas of the mucosa down to the muscularis mucosa. Occasionally the worms become encapsulated by tissue reaction.

Infections with *Strongyloides stercoralis* usually produce mild lesions; however, severe and fatal cases have been reported.^{3, 5, 34, 27} In some of these cases, it is impossible to be certain that strongyloidiasis was the major cause of death.

CLINICAL MANIFESTATIONS

The clinical manifestations of strongyloidiasis are well "illustrated" by Tanaka's description of an experimental infection produced by applying 300 larvae to the palmar side of his forearm.⁴¹ Erythema of the skin began on the day of the infection, lasted approximately 20 days, and was accompanied by intense pruritus. Cough, slight tenderness of the throat, and irritation of the trachea appeared at 6 days and lasted for 3 days. By 17 days a sensation of abdominal fullness, and eventually intermittent aching pain, occurred in the right lower quadrant. Watery diarrhea then alternated with constipation, blood

and mucus occasionally being found in the stool. Severe cough appeared after 25 days, and lasted until his recovery 50 days later. Larvae were first detected in the stool, which was liquid, on the 27th day of the infection. Anorexia, abdominal pain, and diarrhea were major symptoms after 31 days.

Hinman,²¹ reviewed the records of 85 patients with strongyloidiasis at the State Charity Hospital in New Orleans. He found that more than half of the patients had a chief complaint of abdominal pain. In 12, it was diffuse and cramping in nature. Thirteen described an epigastric location, while 7 placed the discomfort in the right lower quadrant. Five described discomfort in the right side of their abdomen. Diarrhea was the chief complaint in 14, of whom 4 had bloody stools. Less frequently, loss of weight, vomiting, malaise, fever, weakness, and indigestion were the presenting complaints. A few patients had alternating diarrhea and constipation, and 10 had constipation alone. In addition, tenesmus, anorexia, headache, distension, and flatulence often were noted. Approximately 50 percent of Hinman's cases were under 20 years of age. Most of Faust's cases in Panama were in patients 11 to 15 years of age. Patients were most often seen in late summer and early autumn. Forty-four of Hinman's 85 cases were admitted during the months of July through October.²¹ Fifty-nine patients were males and 26 were females.

DIAGNOSIS

The diagnosis is primarily a laboratory one. Hinman,²¹ reported that the only significant physical finding was abdominal tenderness in 29 of his 85 cases. In 5 patients the findings were severe enough for appendicitis to be considered, and cholecystitis was suspected in a few cases.

The white blood cell count is usually normal, but most patients have some degree of eosinophilia. One author,²¹ reports an average of 8.6 percent, the highest count being 24 percent. Hensen,²⁶ reported a case with 82.6 percent eosinophiles, but this unusually high value appears to be the exception, rather than the rule. One author,²¹ states that, as the infection becomes chronic, the eosinophilia may decrease and a leucopenia develop.

The diagnosis must be made by demonstration of the organism, either in the stool or in duodenal aspirate. Stool examination can be carried out in several ways. The usual method is the direct

smear, in which a small particle of fresh stool is placed on a clean slide and mixed thoroughly in a drop or two of physiologic saline solution with a small applicator stick. After covering with a cover-slip, the slide is examined under a low-power objective for motile larvae. This is a quick, simple test, but will not detect minimal numbers of larvae as a concentration method will.

Faust, et al.,¹⁹ studied the comparative efficiencies of various concentration techniques, and interested individuals may refer to this article.

Probably the most practical office method, combining simplicity and a high degree of diagnostic accuracy, is the test-tube cultivation technique, originally described by Harada and Mori in 1951.¹⁷ With this method, approximately 0.5 gm. of fresh, formed stool is applied with applicator sticks to a narrow sheet (25 mm. x 150 mm.) of filter paper, leaving approximately 2.5 cm. free of feces on one end of the paper. The filter paper is then placed in a 2 x 18 cm. test tube with the unsmeared end towards the bottom. Three ml. of tap water is introduced, and the top of the tube covered with a sheet of polyethylene film and secured with a rubber band. The test tube should be kept at approximately 30° C. (room temperature), and examined daily for two weeks. When larvae of *Strongyloides stercoralis* are present, they usually will be found in the water at the bottom of the test tube within 48 hours. Hookworm larvae also can usually be isolated, but it requires more than 48 hours for them to appear. The motile larvae are readily identified by examining the bottom of the test tube with a 10 x eyepiece from a microscope. The path of observation should be approximately 90° to the path of the light source. The motile larvae are approximately 0.5 mm. in length. To be certain that the test is negative after incubating one to two weeks, remove the filter paper, centrifuge the liquid, and examine the sediment for larvae.

Another excellent but time-consuming diagnostic method is the examination of sediment from material aspirated from the small bowel lumen. Jones and Abadie,²⁶ reported that one properly performed duodenal drainage was equivalent to 10 stool examinations in the diagnosis of *Strongyloides stercoralis* infections. Although highly accurate, duodenal drainage is not a practical method for the busy physician. The entire procedure requires at least 2 hours, and the tube

must be positioned by fluoroscopy. Therefore, the test-tube cultivation technique probably is the best method for the physician in practice. Skin testing and serological methods are not yet available for clinical diagnosis because of the lack of a commercial antigen.

TREATMENT

In the past, many forms of medication have been used, with a high rate of treatment failure. Gentian violet³⁵ has been used orally, intravenously, and by direct duodenal instillation, but the treatment is lengthy and therapeutic failures common. At present, dithiazanine iodide (Delvex) is considered to be the drug of choice among those now available to the physician in practice. The usual adult dosage of dithiazanine iodide is 100 mg. three times daily for 14 to 21 days. If the infection is not cured by the initial treatment, 200 mg. may be given three times daily for 10 to 14 days after a rest period of 2 weeks. The dosage of dithiazanine for children weighing 9 to 27 kg. is 10 mg/kg. body weight, given daily for 14 to 21 days. Dithiazanine should be used with caution in patients with renal disease and disturbances in fluid and electrolyte balance. It is contraindicated in the presence of severe renal disease, suspected intestinal obstruction, acute abdominal disease, and malabsorption.³⁸ Dithiazanine should be reserved for the treatment of only heavy and clinically significant infections. Deaths have been reported following the administration of as little as 100 mg. of the drug. All patients receiving the drug should be followed closely and therapy discontinued if a bluish-green color of urine or a similar staining of the sclera develops.

Povan (pyrvinium pamoate) has been used by Wang and Galli,⁴⁴ with 11 of 12 patients responding to this drug. Others have had less favorable results with this drug.^{29, 43}

In 1961, a new experimental antihelminthic was introduced under the name of thiabendazole (Mintezol). Published data from clinical trials indicate that this drug is quite effective against *Strongyloides stercoralis* and *Enterobius vermicularis* infections, moderately effective against *Ascaris lumbricoides* and hookworm (both *Necator americanus* and *Ancylostoma duodenale*), and slight activity against *Trichuris trichiura*.^{12, 23, 24, 25, 36} The drug also has been reported effective against "creeping eruption", (cutaneous larva migrans).^{40, 30} Favorable responses have been reported in human trichinosis, but further

studies are necessary.^{39, 37} No serious side-effects have been reported to date from the drug. The only major complaints have been nausea, vomiting, and dizziness. It is believed that this drug will become generally available in the near future, in which case, it will be the drug of choice for the treatment of *Strongyloides stercoralis* infections.

SUMMARY

- 1) The history of the discovery of *Strongyloides stercoralis* was briefly reviewed.
- 2) The life cycle of the parasite and the pathological changes in the host were discussed.
- 3) The clinical symptoms, laboratory values, and physical findings of patients infected with *Strongyloides stercoralis* were presented.
- 4) The various laboratory methods used to make a diagnosis of infection were outlined.
- 5) The recommended form of drug therapy was outlined.

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Renal Amyloidosis

J. H. Martin, A. L. Brown, Jr., and G. W. Daugherty (Mayo Clinic, Rochester, Minn)
Amer J Med Sci 251:129 (Feb) 1966

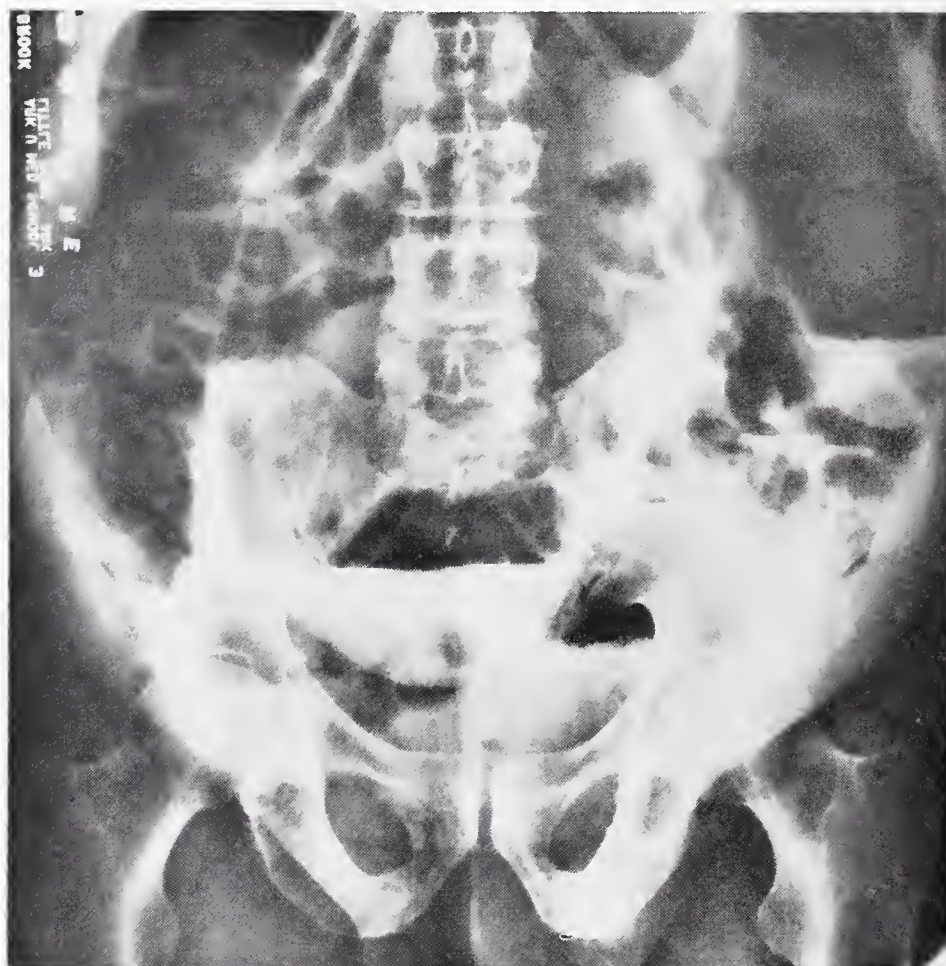
The relationship of the amount of amyloid deposition in the kidney to the clinical picture is reviewed in 14 cases of renal amyloidosis diagnosed by renal biopsy at the Mayo Clinic. The large percentage of patients who had nephrotic syndrome (11) probably reflects the criteria for renal biopsy at this institution. The etiology of the amyloid deposition did not seem to be clearly

ly correlated with either the amount of amyloid deposition in the kidney or the severity of the clinical renal disease. All patients had deposits in the glomerulus, and the heavier deposition the more severe was the renal disease. Of seven patients who had biopsy of the bone marrow, all had abnormal types or numbers of plasma cells. The age range in primary amyloidosis appeared to be about the same as that in amyloidosis secondary to myeloma. Amyloidosis should be suspected in patients with proteinuria, nephrotic syndrome, or renal failure.

WHAT IS YOUR DIAGNOSIS ?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

SEE ANSWER ON PAGE 53



15-55-71

66-year-old male

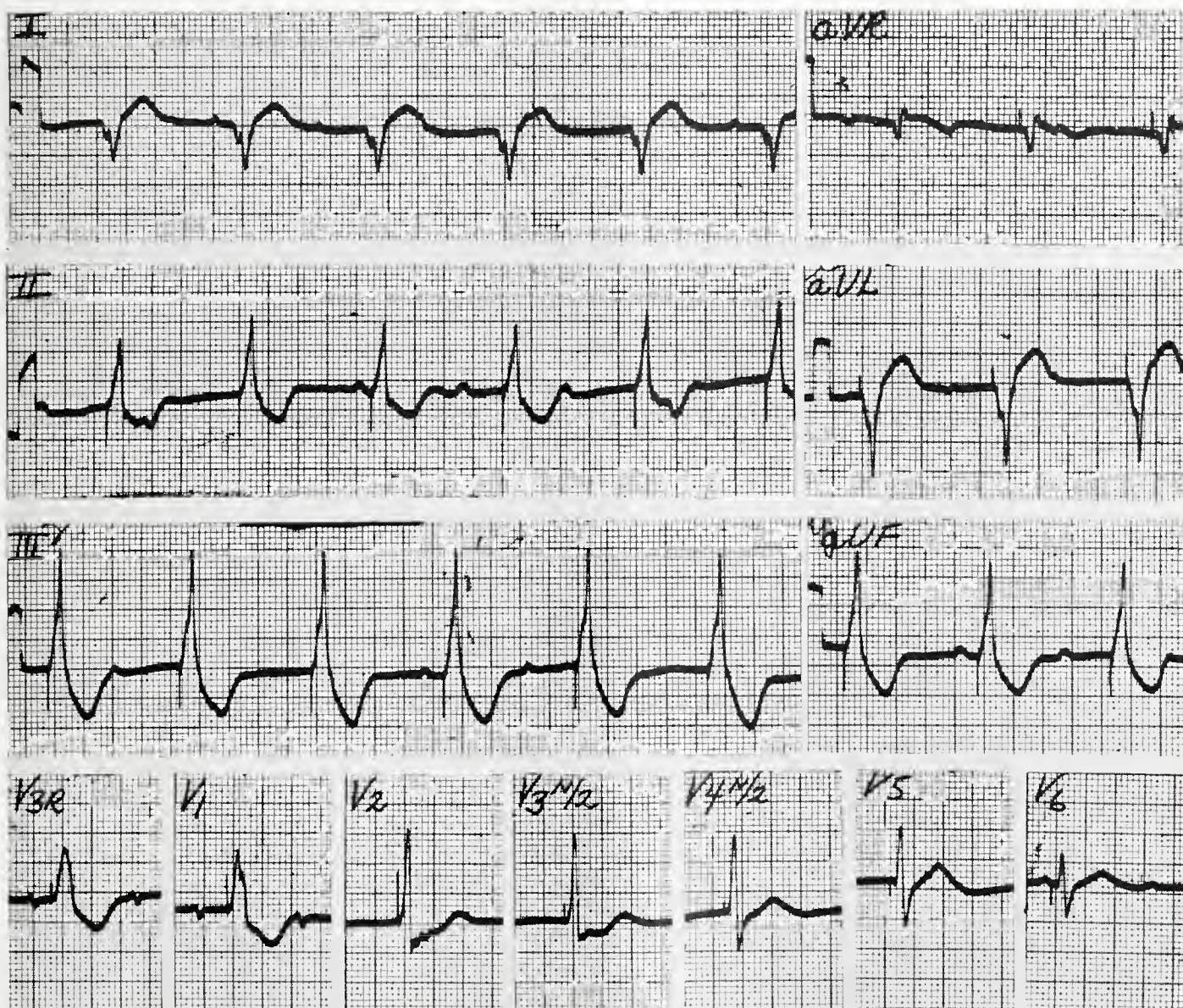
HISTORY: This man had experienced one day of lower abdominal pain followed by nausea and vomiting. Examination showed marked distension of the abdomen with occasional tinkling and rushing bowel sounds. On two occasions the patient was decompressed by sigmoidoscopy and insertion of a rectal tube with passage of large amounts of liquid feces and gas.

ELECTROCARDIOGRAM



OF THE MONTH

AGE: 62 SEX: F BUILD: Medium BLOOD PRESSURE: 196/50
 CARDIAC DIAGNOSIS: Complete Heart Block
 OTHER DIAGNOSES: Hypertensive and Arteriosclerotic Heart Disease
 MEDICATION: Isuprel
 HISTORY: Syncopal attacks for 5 years
 SEE ANSWER ON PAGE 53



The Department of Medicine, University of Arkansas Medical Center
 James S. Taylor, M.D., Professor of Medicine



PUBLIC HEALTH AT A GLANCE

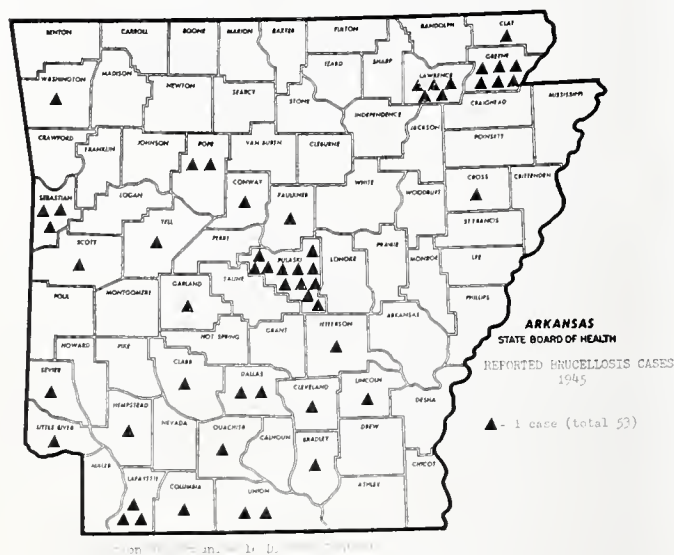
BRUCELLOSIS

Historically, a contagious form of abortion in cattle was recognized to exist in England prior to 1567 by Edwards. The prevalence of the disease on the Island of Malta gave the disease one of its synonyms, "Malta Fever". British soldiers stationed on this Mediterranean Island furnished Dr. Bruce the cases from which he isolated the melitensis organism. The name undulant fever was suggested by Hughes in 1897. This same year, Dr. Bang of Denmark isolated the abortus species. The suis species was identified from the fetuses of aborting swine in 1914 by Traum in the United States. The generic name Brucella, in honor of Dr. David Bruce, was suggested by Meyers and Shaw in 1920.

In 1945, approximately 4,000 cases were reported in the United States. At that time, Evans estimated that the figure should be at least 40,000. Comparable figures for Arkansas would suggest that the 53 cases should have been in reality 530 cases had all the atypical cases been reported to say nothing of the tremendous number of asymptomatic infections that we now know exist around clinically recognized and reported cases. 1965 saw 257 human Brucellosis cases reported to the

Communicable Disease Control Center of the U.S. Public Health Service. Ten of these were Arkansans. Although there was a 37 percent reduction in the reported United States cases since 1964, Arkansas nearly doubled the 6 reported cases of the previous year. Nationally, a downward trend began in 1947 with a plateau during 1960-64; therefore, we are thankful that a resumption of the downward trend has occurred.

Ironically, the veterinarians, who are a prime factor in brucellosis eradication programs, have recently been the victim in a disproportionate number of reported cases. The high incidence among this group of professional men reflects the difficulties of maintaining good personal hygiene in areas presenting environmental deficiencies for sanitation and hygiene. This is an extension of the trend from the nomadic shepherd to the rancher and his family who assisted with the care and slaughtering of animals giving way to the occupational hazard among slaughter house and livestock workers. Laboratory personnel have been the victims of accidental infections with these organisms on numerous occasions in the past prior to developing a wholesome respect for



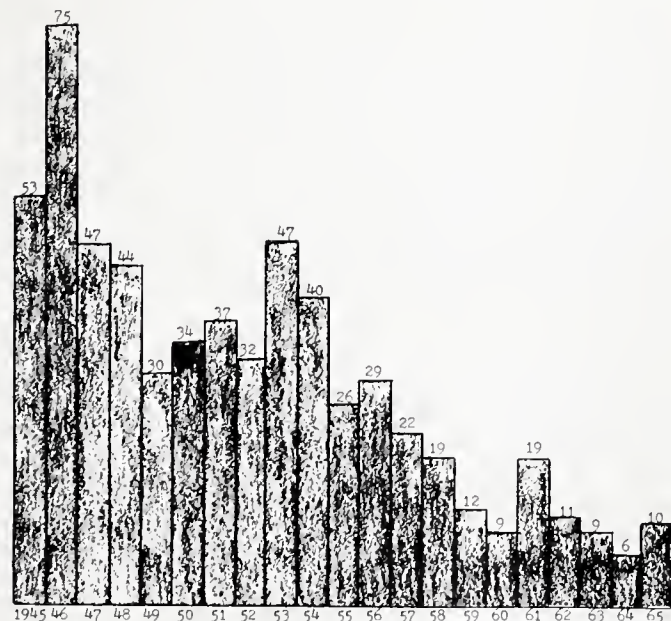
the serious disease that this may be, although the insidious asymptomatic infections predominate. A tremendous reduction in numbers of human cases resulted following the almost universal pasteurization of milk.

Although the fatality rate is reported to be up to 2 percent, from the 3 species it has been suggested that the infections due to *Brucella suis* may be more severe and may have been responsible for more of the fatal cases. The septicemia occurring intermittently with the characteristic relapses produced the typical undulating fever. During any episode of septicemia the dangerous complications of endocarditis and meningo-encephalitis loom as a potential.

In addition to direct contact with infected animals, their tissues or secretions such as infected milk or dairy products, we must bare in mind that air-borne infection may occur in humans breathing the dust from infected pens or stables, as well as from any source producing a suspension of the organism in the laboratory or abattoir.

Active immunization of stock yard workers, farmers, veterinarians, and laboratorians handling material potentially contaminated by the brucella may be desirable in the interim while we have not yet achieved the goal of eradication of Brucellosis. Eradication of human Brucellosis is definitely a probability in the near future, but is contingent on the continued cooperation of live-stock agencies, veterinarians, physicians, and public health agencies.

REPORTED BRUCELLOSIS CASES IN ARKANSAS 1945-1965



RESOLUTIONS



Whereas Ewing H. Crawfis, M.D., LL.B., was a faithful and active member of the Arkansas Psychiatric Society while he was in residence in the state of Arkansas; and

Whereas Dr. Crawfis was a faithful and active member of the Pulaski County Medical Society, the Arkansas Medical Society, and the American Medical Association while he was in residence in Arkansas; and

Whereas Dr. Crawfis, as superintendent of the Arkansas State Hospital from 1954 to 1956, worked loyally and diligently for the state of Arkansas, particularly in the area of mental health; and

Whereas Dr. Crawfis as a member of the Policy Committee of the Assembly of District Branches of the American Psychiatric Association continued to share an interest in the Arkansas Psychiatric Society and the mental health affairs of Arkansas, and

Whereas the Arkansas Psychiatric Society as a District Branch of the American Psychiatric Association notes with deep regret the untimely passing of Dr. Crawfis: Now therefore be it

Resolved, That the Arkansas Psychiatric Society extends to the family and friends of Dr. Crawfis its deepest sympathy at this time: and be it further

Resolved, That a copy of this resolution be sent to the family of Dr. Crawfis: and be it further

Resolved, That a copy of this resolution be forwarded to the Board of Control of the Arkansas State Hospital: and be it further

Resolved, That a copy of this resolution be made a part of the records of the Arkansas Psychiatric Society: and be it further

Resolved, That a copy of this resolution be sent to the Arkansas Medical Society: and be it further

Resolved, That a copy of this resolution be sent to the Assembly of District Branches of the American Psychiatric Association.

Passed unanimously by the Arkansas Psychiatric Society in regular session Thursday, February 24, 1966.

Fred O. Henker, III, M.D.
President
Arkansas Psychiatric Society



EDITORIAL

The Public Should Know About Utilization Committees

Alfred Kahn, Jr., M.D.

Leaving aside the compulsory aspects of government medicine, some of its by-products may be worthwhile. The public is going to have to become aware of what is known as the "Utilization Committee". Up to this point very little effort has been made to acquaint the lay population with the work of Utilization Committees. The Medical Profession should make an effort to explain the functions of this hospital watchdog.

Actually, Utilization Committees were set up voluntarily in a number of areas more than seven or eight years ago—which was, of course, prior to the Medicare Bill which requires by law the establishment of Utilization Committees in the hospital. The public is not fully aware of the tremendous load of patients with which the hospitals have to cope. With the advent of almost universal health insurance, most patients want to go into the hospital for any and all types of medical and surgical procedures in order to defray the cost of Medicare. In the future, when Medicare begins, this trend will be accentuated and the hospitals will be overloaded unless the Medical Profession and the public make a combined effort to avoid unnecessary and prolonged hospital admissions.

In general, at the outset it was intended that Utilization Committees would be educational committees and if clear transgression of good standards of practice with regard to admissions to hospitals and length of duration in hospitals were found, then the information would be turned over to another committee or organization for remedial action. As the matter now stands, the Utilization Committee will probably have both the duty of finding cases in which there have been unneces-

sary or prolonged admissions and it will also have to act as a policeman of sorts.

If it could be sold to the public that, in general, a few simple rules could explain who should go into the hospital and who should not, it would be helpful. For example, the following categories probably represent the deserving patient group for hospitals for the care of the acutely ill:

- (1) Non-ambulatory patients.
- (2) Febrile patients.
- (3) Surgical patients.
- (4) Obstetrical patients.
- (5) Complicated diagnostic problems.

Clearly it is not the intention of hospitals to take care of ambulatory patients, lightly ill patients, simple diagnostic problems, etc. To admit these patients into the hospital is bad because it unnecessarily runs up the cost of medical care, which is reflected in elevated insurance premiums which other policyholders have to pay, and, of course, it overcrowds the hospital so that really sick folks cannot be admitted.

By the same token, the public should be advised that hospitals for the acutely ill are not intended to be a convalescent home. The hospitals have statistics indicating the average duration of stay for various conditions and it is perfectly reasonable to use this as a yardstick in advising a patient approximately when he or she should be discharged. It is inexcusable to keep ambulatory patients in a hospital for convalescent care just because it is more convenient to get to rehabilitation, laboratories, etc.

Many years ago, Heinrich Bruening, a pre-Hitler Chancellor of Germany, commented at length on socialized medicine in Germany. He said that the early experiments failed because

the public took advantage of the program to avoid work and, secondly, because the doctors made no attempt to police the small minority of their profession who took advantage of the program to enhance their personal income. No matter how odious Medicare may be to the Medical Profession in the United States, if it is going to work at all, jamming the hospitals with patients who do not require hospitalization and overstaying reasonable limits of hospitalization must be avoided. Medicare only affects the 65 year and up age group theoretically, but if the older age group patients jam the hospitals it will be impossible for the younger age population (under 65 years) to get into the hospital when they are acutely ill.

More hospital beds will not be in the public interest as a means of solving problems of inappropriate utilization of hospital beds. Hospital construction is exceedingly expensive and the community has to bear this cost; staffing hospitals is tremendously expensive and the public and the insurance company have to bear this cost almost

directly. The answer to all of this is proper utilization of existing facilities with the addition of an appropriate number of beds when the facilities are properly utilized.

The most regrettable facet of the Utilization Committee program is that it is required by law. This thoroughly desirable watchdog committee, when required by government edict, represents an important encroachment on individual liberty, and the rather stern manner in which it has been handled by government agencies represents another unfortunate step toward socialism in government. The Medical Profession could have accomplished the setting up of Utilization Committees without the rancor which will be felt because these committees were set up by statute.

The public support should be obtained for the Utilization Committee program. If properly employed it will enable the patient to get earlier hospitalization, cheaper insurance rates, and more effective medical care.

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: 68 RHYTHM: Idioventricular
PR: — sec. QRS: .13 sec. QT: .40 sec.

ABNORMAL: P waves occur independent of QRS at rate of 85. QRS regular, prolonged at rate of 68 and in each instance immediately preceded by downward deflection from implanted pacemaker.

COMMENT: Incomplete A-V block with atria governed by sinus node and showing characteristic electrocardiogram produced by electronic pacemaker implanted in left ventricle.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Sigmoid volvulus. It was felt that the passage of the tube had reduced a volvulus. At operation several days later a large redundant distended loop of sigmoid colon was resected.

X-RAY FINDINGS: A very large distended loop of sigmoid fills the entire central abdomen in a vertical direction and contains a large fluid level at its base. (erect film.)



FOREIGN FELLOWSHIP PROGRAM FOR MEDICAL STUDENTS

The Foreign Fellowship Program* for medical students administered by the AAMC has over the past seven years enabled 215 selected medical students to benefit from the unusual clinical experience to be gained by working in the primitive settings of rural medical stations in medically underdeveloped areas of 48 countries. Figure 1 depicts the countries in which medical students have served their foreign fellowships.

Figure 1



COUNTRIES IN WHICH FELLOWS HAVE SERVED

Afghanistan	Iran	Philippines
Bolivia	Israel	Republic of
Brazil	Ivory Coast	the Congo
Burundi	Japan	Rhodesia
Cambodia	Kenya	Sierra Leone
Cameroon	Liberia	South Africa
Central African	Libya	South Korea
Republic	Malagasy	South Vietnam
Chile	Republic	Swaziland
Ecuador	Malawi	Taiwan
Ethiopia	Malaysia	Tanzania
Gabon	Nepal	Thailand
Ghana	New Hebrides	Tonga
Guatemala	Nicaragua	Uganda
Haiti	Nigeria	Venezuela
India	Oman	West Pakistan
Indonesia	Peru	Zambia

Junior and senior students from all U.S. medical schools are eligible to apply for a Foreign Fellowship to be carried out on completion of their third year of medical school and prior to their internship. Each fellow is required to spend a mini-

mum of ten weeks at a foreign medical facility which can provide an acceptable program under the supervision of a physician. Eligible medical students make Fellowship application through the office of their dean who selects two candidates to be submitted to a selection committee of medical educators. All applications are reviewed on a competitive basis, awards being made to applicants whose ability, motivation, and proposed fellowship program are deemed most deserving of support.

Subject to AAMC approval, the amount of each fellowship award is determined by the estimate of expenses that will necessarily be incurred by the student in carrying out the proposed project, providing for travel and living costs, as well as allowances for personal accident insurance, passport and visas. The expense of a spouse to accompany a Fellow is provided when constructive use of the spouse's training is assured by the foreign sponsor. To be eligible for support, a spouse must be a registered nurse, a qualified medical or dental technologist or technician, or must have completed training in some other category of professional health service.

Annual awards are limited to one Fellowship grant per medical school. Foreign Fellowship awards have been made to students at 79 of the 87 medical schools. As shown in Table 1, a majority of the schools have had award recipients in more than a single year.

Table 1
Number of Schools Whose Students Have Won Awards in One or More Years, 1960-65

Number of Years	Number of Schools
1	21
2	19
3	13
4	15
5	9
6	2
Total	79

*The program is made possible through a grant from Smith, Kline, & French Laboratories of Philadelphia.

THE MONTH IN WASHINGTON

Washington, D.C.—The Johnson administration wants to prohibit manufacturers from mailing physicians free prescription drug samples except when specifically requested. The administration also has proposed that door-to-door distribution of samples of over-the-counter drugs also would be banned.

The proposals are included in new drug legislation that would expand the authority and responsibilities of the Food and Drug Administration in policing drugs.

The legislation would have Congress find that:

"(1) the mass of unsolicited samples of prescription drugs supplied to licensed practitioners by manufacturers and distributors through the mails and otherwise has led to large-scale discarding and other disposal of unwanted samples which are finding their way into the hands of persons who scavenge and repack such drugs and sell them to pharmacists for dispensing on prescription in the same manner as regular stock of drugs;

(2) children have obtained carelessly discarded samples;

(3) the dispensing or sale of a prescription drug sample to a patient for a fee without identification of the drug as a sample is a deceptive practice; and

(4) the unsolicited distribution of nonprescription sample drugs directly to householders lacks minimum safeguards which would be involved in the sale of the drug in a pharmacy or other place of business.

Labels would have to read: "SAMPLE DRUG. FEDERAL LAW PROHIBITS ANY CHARGE OR FEE FOR THIS DRUG."

Under the legislation, the FDA would be authorized to require records and reports of adverse reactions and efficacy on all drugs now being marketed. Dr. James L. Goddard, Food and Drug Administration commissioner, already had ordered a review of drugs cleared before 1962.

Another provision of the legislation would "require certification of all drugs whose potency and purity can mean life or death to a patient," thus extending the law which now applies to insulin and antibiotics.

The Pharmaceutical Manufacturers Association expressed doubt that the FDA could carry out such an additional responsibility. PMA president C. Joseph Stetler said it seems "unwise to

propose new areas of responsibility for an agency which has not yet proven its ability to administer" its present programs. Stetler added:

"The industry has said before that no amount of labeling can protect an individual who refuses to protect himself by ignoring his doctor's orders or the directions on the label of his medicine. Even when manufacturer and patient do everything right, an adverse reaction still is possible and medical science probably never will find a way to make it otherwise.

"There is no such thing as 'miracle legislation' which automatically produces a drug utopia."

In a speech highly critical of the ethical drug industry at the annual meeting of the PMA, Goddard talked of irresponsibility. He said, "too many drug manufacturers may well have obscured the prime mission of their industry: to help people get well." He said he had been shocked by the quality of some of the data on new drugs submitted to the FDA. There also "is the problem of dishonesty in the investigational drug stage," he said.

Goddard further charged that some drug advertisements "have trumpeted results of favorable research and have not mentioned unfavorable research; they have puffed up what was insignificant clinical evidence; they have substituted emotional appeals for scientific ones."

Stetler said after the speech that he and his colleagues feared the talk "might, unfortunately, be interpreted as an indictment of the entire drug industry, because of its overemphasis on isolated instances, without acknowledging the integrity and responsibility which our industry has consistently demonstrated."

"It is an unassailable fact," Stetler said, "that the scientific attainments and standards of performance of the American prescription drug industry have provided an immeasurable benefit to the improvement of health and the prolongation of life."

* * *

Officials estimate that the hospitalization part of medicare will cost about \$2.3 billion in the first year of the program which starts July 1.

Benefit payments under Plan B, the medical part of medicare, are estimated at \$765 million for the first year. Premium collections — \$3 per person per month—are estimated at \$550 million, which will be matched by the federal government.

Persons 65 years or older have until May 31 to sign up for Plan B. The original deadline for signing up was March 31. On that date, 1.3 million of the 19.1 million persons 65 or older had not indicated whether they wanted Plan B coverage. About 16.8 million, or 88 per cent, had signed up and one million, or about five per cent, had said they did not want the coverage.

President Johnson signed the deadline extension into law at a ceremony at a federally-financed apartment project for the elderly at San Antonio, Tex., while he was spending the Easter holidays at his Texas ranch.

Rep. Durward Hall, M.D., (R., Mo.) reported that a poll of his constituents showed them overwhelming against extending medicare to persons of all ages. Of 13,760 persons replying to a questionnaire, 86.3 per cent said "no" to the question: "Do you favor increasing social security taxes to finance a compulsory medical program for the entire population?" "Yes" answers totaled 11.2 per cent and 2.5 per cent didn't answer the question.

* * *

The federal government received segregation complaints against about 320 hospitals after a special policing agency was set up in the Department of Health, Education and Welfare.

Dr. Philip R. Lee, HEW Assistant Secretary for Health and Scientific Affairs, said that about 100 of the complaints were settled by negotiation with the hospitals.

"This leaves us with pending complaints against approximately 220 facilities, most of which have been investigated and found to be out of

compliance and therefore ineligible for new federal funds," he said.

* * *

President Johnson has ordered that steps be taken to give rehabilitation aid to more of the disabled persons on public welfare.

In a letter to HEW Secretary John Gardner, President Johnson noted that the federal budget for fiscal 1967 would provide for vocational rehabilitation training for 215,000 handicapped persons, a 25 per cent increase over the present year, and added:

"As we plan for the larger program I believe we should do better than we have in rehabilitating persons who are now on our public welfare rolls. In the last several years, although the absolute numbers have increased, the proportion of welfare recipients receiving training has declined from 15 per cent to 13 per cent. I think this trend should be reversed . . .

"I would like you to review the possibilities in this area and report to me with recommendations for federal and state action by June 1."

THINGS TO COME



The Great Smoky Mountains Pediatric Seminar will have its annual meeting in Gatlinburg, Tennessee, June 9-11, 1966.



PERSONAL AND NEWS ITEMS

Dr. Ashcraft Speaker

Dr. Ted Ashcraft of Russellville spoke at a baby-sitter training course sponsored by Russellville Jaycettes in March. His topic was "Medical Aspects of Babysitting".

Robins Property Sold

Dr. R. B. Robins, Chicago, formerly of Cam-

den, has sold the Robins Clinic property in Camden to the city of Camden for a new fire station.

New Doctor for Rison

Dr. Griffin Ferrell will establish his practice of medicine in Rison in July. He will be associated with Dr. B. A. Barksdale in Rison.

Dr. Garry to Trumann

Dr. Bill Garry became associated in April with Dr. Floyd A. Smith, Jr., at the Smith's Hospital, Inc., in Trumann.

Dr. Fitch Receives Award

Dr. Coy D. Fitch, Assistant Professor of Medicine and Biochemistry at the University of Arkansas Medical Center, is one of fifteen persons in the United States and Canada to receive the \$7,600 Lederle Medical Faculty Awards. The unrestricted grants go to scientists who have demonstrated promise or ability in research and in medical teaching, particularly as it relates to improved patient care.

Dr. Blackwell Accepts Check for Library

Dr. O. G. Blackwell of Dumas, chairman of the board of the Desha County Hospital, was presented a check for the medical library by the Desha County Hospital Auxiliary in observance of Doctor's Day.

Dr. Jordan Featured

Dr. William K. Jordan, Little Rock neurologist, was on the program for the Texas Medical Association annual meeting held April 14-17 in Austin, Texas.

Dr. Pupsta Honored

Dr. Benedict Pupsta of Clarendon was honored on the Annual Doctor's Day, March 30th, in Clarendon.

Dr. Ducker in AAGP

Dr. David Ducker of Salem has been elected to active membership in the American Academy of General Practice.

Monticello Future Site of Hospital

Dr. George Jackson, Superintendent of the Arkansas State Hospital, Little Rock, spoke to a meeting of citizens in Monticello in March. He discussed the probability of Monticello being the site of a satellite hospital of the Little Rock and Benton hospital units in the near future. Dr. C. Lewis Hyatt of Monticello, president of the Arkansas Medical Society, introduced Dr. Jackson.

Dr. Hundley Retiring

Dr. Louis K. Hundley of Pine Bluff, chairman of the Jefferson County Board of Health and the county Board of Education, has announced that he would resign his posts and retire from the active practice of medicine. He said his decision to

retire was due to ill health. Dr. Hundley has practiced in Pine Bluff since 1946.

Dr. McCurry Special Guest

Dr. J. H. McCurry of Cash was a special guest at the Missouri State Medical Association Fifty-Year Club Luncheon in March at Kansas City, Missouri. Dr. McCurry is Secretary of the Fifty-Year Club of American Medicine.

Dr. Nettles Program Participant

Dr. John B. Nettles, Associate Professor of Obstetrics and Gynecology at the University of Arkansas Medical Center, participated in the Oklahoma State Medical Association's annual meeting program held May 13-15 in Oklahoma City.

Dr. Fish Leaving Medical Center

Dr. Stewart A. Fish, presently Assistant Professor of Obstetrics and Gynecology at the University of Arkansas Medical Center, will leave the Medical Center July 1st to accept the position of Professor and Chairman of Obstetrics and Gynecology at the University of Tennessee Medical Units at Memphis, Tennessee.



Mrs. C. C. Long of Ozark, Arkansas, First Vice President of the Woman's Auxiliary to the American Medical Association was a principal speaker at the inaugural banquet at the annual convention of the Louisiana State Medical Association held in Alexandria, Louisiana, on May 1-4. Mrs. Long shared the rostrum with the Governor of Louisiana, J. H. McKeithen.

While Mrs. Long officially represented the AMA Auxiliary, it is reported that her talk was enthusiastically received and reflected great credit on Arkansas and the Woman's Auxiliary to the Arkansas Medical Society.

Mrs. Long's duties as vice president of the National Auxiliary made it necessary for her to miss a great part of the 90th Annual Session of the Arkansas Medical Society. She travels extensively to many of the States in the Union to represent the Auxiliary.



PROCEEDINGS OF SOCIETIES

Boone

Members of the Boone County Medical Society have been giving medical examinations to school children of Newton county. The free examinations are part of the federal Economic Opportunity program recently inaugurated. Facilities of the Boone County Hospital are utilized in the program.

Boone County Physicians were honored in March at the Harrison Country Club with the annual Doctor's Day Banquet. Physicians receiving special honors were: Dr. D. L. Owens for forty-five years of medical service; Dr. W. A. Hudson for forty-six years of service, and Dr. G. Allen Robinson for forty-seven years of service.

Pulaski

A meeting of Little Rock physicians was held in March at the Pulaski County Medical Society Building to discuss a shortage of nurses that has caused the closing of a unit at St. Vincent's Infirmary. Dr. Joseph D. Calhoun, president of the Pulaski County Medical Society, said the doctors formed an unofficial committee to make a continuing study of the problem and try to find a solution.

Arkansas

Physicians of Arkansas County were honored with a dinner party at Stuttgart Country Club in March in observance of the annual Doctor's Day.

Garland

Five Hot Springs physicians were honored at a luncheon in observance of Doctor's Day at Hot Springs in March. The seven physicians, all of whom have practiced medicine for over half a century, are: Dr. George C. Coffee, Dr. Louie G. Martin, Dr. H. King Wade, Sr., Dr. Francis J. Scully, and Dr. O. A. Smith.

MINUTES, COUNCIL MEETING

12:00 noon, April 3, 1966

Albert Pike Hotel, Little Rock

The Council of the Arkansas Medical Society met at 12:00 noon on Sunday, April 3, 1966, in the Albert Pike Hotel, Little Rock. The following members of the Council and guests were present: Thomas, Hyatt, Whittaker, Shuffield, Fairley, Gray, Edwards, Millar, Townsend, Burton, Kennedy, Norton, Payton Kolb, Fowler, Applegate, Long, Koenig, Saltzman, Johnston, James Kolb, Brooksher, Ellis, Verser, Snodgrass, Price, Kenneth Duzan, Henry Crane, Tom Jansen, John Herron, Edgar Easley, Winston Shorey, Mr. Warren, Mr. Harris, Mr. Schaefer, Miss Richmond, and SAMA representatives Messrs. Jerry Mann, Art Squire, Mike Buffington, and Sam Koenig.

Business was transacted as follows:

- I. The new officers of the Student American Medical Association chapter at the University of Arkansas Medical Center were introduced: Jerry Mann, president; Art Squire, vice president; Sam Koenig, secretary; and Mike Buffington, treasurer.
- II. Chairman Thomas called the attention of the Council to the article on the Battered Child Syndrome in the March issue of the Journal, urging the members to take advantage of the information available to them in the Journal.
- III. Dr. Thomas reviewed the history of the appointments to the 21-Man Committee, pointing out that the House of Delegates authorized the Executive Committee to make appointments to the Committee, with no provision for appointment by any specialty group or com-

ponent society. He pointed out that many factors were considered by the Executive Committee in making the appointments. He urged the councilors to discuss the committee membership with their component societies and/or specialty sections and to encourage cooperation with the committee.

IV. Upon motion of Shuffield and Saltzman, the Council voted to authorize travel expenses for the Society Counsel, Mr. Warren, to attend a Legal Conference to be sponsored by the AMA in Chicago April 15-16.

V. Chairman Thomas announced that the AMA would sponsor a third conference on Medicare in Chicago on June 25th, the day prior to the opening of the AMA convention. Upon motion of Saltzman and Edwards, the Council voted to request our regularly-elected delegates and alternates to the AMA to represent the Society at the conference.

VI. W. R. Brooksher, chairman of the Budget Committee, presented the proposal for the 1966 budget. Upon motion of Edwards and Whittaker, the budget was approved as submitted.

VII. Upon motion of Long and Applegate, the Council voted to request the editor of the Journal to discontinue publication of bibliographies in connection with scientific articles.

VIII. Chairman Thomas announced that the Society had been notified that it had been voted an active membership on the Arkansas Interagency Council on Smoking. Upon motion of Saltzman, the Council voted to authorize the Executive Committee to take whatever action it considered appropriate after investigation of the Arkansas Interagency Council on Smoking.

IX. Chairman Thomas announced that a member of the Sub-Committee on Tuberculosis had requested Council consideration of his minority report. Inasmuch as the majority report of the Committee had not been considered by the Council it was ruled that it would be out of order to consider the minority report. The report was referred to a reference committee of the House of Delegates for consideration at the appropriate time, upon motion of Norton and Shuffield.

X. C. C. Long reported on the 21-Man Medicare Committee of which he is chairman. He ad-

vised that one meeting had been held with 19 of the 21 present. The committee approved the form for the fee survey which has now been received by physicians over the State. He urged physicians to cooperate in completion of the fee survey questionnaire. Dr. Long also discussed the proposal that representatives of specialty sections and/or component societies be invited to attend meetings of the 21-Man Committee. He expressed the opinion that committee meetings should be limited to the members of the Committee, pointing out that twenty-one is about the maximum for a workable group and that attendance by physicians unfamiliar with the background of the committee would necessitate extra time in review. He feels that physicians with problems to be considered by the committee should discuss the matter with a member of the committee.

XI. Upon motion of Saltzman and Kennedy, the Council voted to increase the budget amount for the contribution to the Student AMA to \$250 since the convention this year is in Los Angeles.

XII. Upon motion of Townsend and Whittaker, the Council voted to accept the Mead Johnson offer of a cash award and plaque for the best scientific exhibit at the Society's 1966 convention.

XIII. Upon motion of Koenig and Burton, the Council voted to adopt the resolution presented by the Union County Medical Society supporting the stand of pathologists in their disagreement with social security administration officials on billing for services rendered in hospitals. (Copy attached)

XIV. Dr. Shorey reported on the AMA Congress on Medical Ethics which he attended in March as one of the Society's official representatives.

XV. C. R. Ellis, chairman of the Constitutional Revisions Committee, pointed out that proposed amendments to the Constitution up for final vote at the May convention would establish a "provisional" membership classification. He urged members to study the amendments and participate in the open hearings of the reference committee which will consider the matter.

XVI. Upon motion of Shuffield and Gray, the Council authorized the president to arrange for special recognition of Dr. J. H. McCurry's work with the Fifty Year Clubs and other activities of

organized medicine. It was suggested that a plaque be prepared for presentation at the President's Banquet on Tuesday, May 3. Norton suggested that each member of the Council write Dr. McCurry a personal note of appreciation.

XVII. After brief discussion of the importance of Utilization Review Committees under Public Law 89-97, it was moved (Saltzman-Townsend) that the Executive Vice President send a letter to the chiefs-of-staff of all hospitals urging them to see that physicians take the lead in activating utilization committees and that physicians are appointed to the committees.

XVIII. The possibility of the Arkansas Department of Welfare "buying in" on the supplementary medical insurance portion of Public Law 89-97 and electing to serve as carrier for its welfare clients was discussed by the Council. Upon motion of Koenig and Townsend, the Executive Vice President was directed to obtain information on the Casey Bill from the California Medical Association. The bill prohibits the Welfare Department from serving as intermediary in such cases. When the information is obtained, it is to be turned over to the Legislative Committee of the Society for study.

XIX. Treasurer Ben Saltzman presented the audit report for the year 1965. Upon motion of Saltzman and Kennedy, the Council accepted and approved the report as submitted.

XX. AMA Delegate James M. Kolb announced that the president of the AMA would be installed at a ceremony to be held at 4:00 p.m. on Tuesday, June 28. The ceremony calls for participation of the presidents of the state medical societies. Upon motion of Hyatt and Fowler, the Council voted to authorize travel expenses for the Society president to attend.

XXI. Chairman Thomas called the attention of the Council to the fact that Ben Saltzman had recently been named chairman of the Council on Rural Health of the American Medical Association.

XXII. Upon motion of Koenig and Norton, the Council voted to accept the offer of the Parke-Davis Company to present framed pictures from the "History of Medicine" series to the Society. The presentation is to be made during the President's Banquet on May 3rd. The framed pictures are to be given to the Medical Center for use as it sees fit.

XXIII. C. R. Ellis, as chairman of the Constitutional Revisions Committee, announced that he had drawn up a constitutional amendment proposing a Committee on Area-wide Planning of Medical and Hospital Facilities. The duties of the committee shall be to take the initiative in organizing in communities, districts, and/or other geographical areas for the planning of new medical and hospital facilities, or additions to present institutions.

XXIV. SAMA president, Mr. Jerry Mann, thanked the council for inviting their representatives to the Council luncheon and for the generous action in voting to contribute \$250 to SAMA for travel expenses to the national convention.

APPROVED:

H. W. Thomas, M.D.
Chairman

RESOLUTION RE: PATHOLOGISTS

WHEREAS the AMA House of Delegates in special session in Chicago in October 1965 passed this policy:

"Hospital-based medical specialists are engaged in the practice of medicine. The fees for the services of such specialists should not be merged with hospital charges. The charges for the services of such specialists should be established, billed and collected by the medical specialist in the same manner as are the fees of other physicians";

and

WHEREAS the College of American Pathologists has issued a statement of policy which conforms with the above-stated policy of AMA; and

WHEREAS despite the efforts of many to include pathologists under Part A, Section XVIII of Public Law 89-97 (Medicare Law), pathologists and three other sets of hospital-based specialists (radiologists, anesthesiologists, and psychiatrists) were placed under Part B in the law; and

WHEREAS under the Department of Health, Education and Welfare, with the approval of the Health Insurance Benefits Advisory Council, there has been promulgated a set of "Principles for Reimbursement under Medicare for services of hospital-based Physicians" which would allow under Part B of the law billing for only those services performed by the physician in person; and

WHEREAS these principles proposed by HEW would permit the pathologist to bill for little other than tissue work and would deny the pathologist the right to bill for the professional component inherent in each laboratory procedure:

THEREFORE BE IT RESOLVED that the Council of the Arkansas Medical Society supports the principles set forth by AMA in October 1965 and subsequently substantiated by the College of American Pathologists, and

FURTHER RESOLVED that the Council of the Arkansas Medical Society condemns HEW for not only ignoring the principle set by AMA but for perverting the stated intent of Public Law 89-97 relative to hospital-based specialists; and

FURTHER RESOLVED that the Council of the Arkansas Medical Society calls upon all physicians—regardless of their type of practice—to support the pathologists in their contests with the Department of HEW; and

FURTHER RESOLVED that copies of this resolution be sent to the College of American Pathologists, the Board of Trustees of the American Medical Association, presidents of all county medical societies in the State of Arkansas, Congressman Wilbur Mills and all other Arkansans in the Congress.

ADOPTED: April 3, 1966

Council of the Arkansas
Medical Society



DR. NORMAN RUDOLPH SALIBA is a new member of St. Francis County Medical Society. A native of Ozark, Alabama, he received his pre-medical education from Emory University and from the University of Georgia. He received his M.D. degree from the Medical College of Georgia in 1958 and he interned at Baptist Memorial Hospital in Memphis, Tennessee. He served in the

U.S. Navy for 38 months. Dr. Saliba is associated with the Forrest View Clinic in Forrest City, Arkansas. He is a general surgeon.

A new member of Pulaski County Medical Society is DR. GILBERT SADLER CAMPBELL, a native of Toronto, Canada. He received his pre-med from Hampden-Sydney College in Hampden-Sydney, Virginia, and from the University of Virginia at Charlottesville. In 1946 he received his M.D. degree from the University of Virginia School of Medicine and he interned at the University of Minnesota Hospitals in Minneapolis, Minnesota. He served in the U. S. Army from 1949-1951. Dr. Campbell is a surgeon and he is at the University of Arkansas Medical Center in Little Rock where he is Professor and Chairman of the Department of Surgery.

Pulaski County Medical Society announces that DR. JOHN DILLARD McCracken is a new member. He was born at Leslie, Arkansas, and he received his preliminary education from Hendrix College in Conway. He was graduated from the University of Arkansas Medical School in 1958 and he interned at the University of Arkansas Medical Center. He served in the U.S. Army from 1960-1961. Dr. McCracken is a surgeon and he is now Assistant Professor of the Department of Surgery at the University of Arkansas Medical Center in Little Rock.

Dr. R. B. Robins, Chicago, formerly of Camden, Arkansas, has designed a General Practice Residency program at the Norwegian-American Hospital in Chicago. Dr. Robins has interns and residents from foreign countries under his educational supervision.



This text of current pediatric therapy is well written. The various articles are by outstanding authorities in their respective fields and the editors have shown an excellent choice in the selection of these individuals. Almost every possible topic is covered. The very complexity of pediatric medicine is so great that a text of 956 pages cannot possibly cover any of the disorders in any real depth. This is a most worthwhile reference, however, to medical students

and general physicians. It would not be of much interest to pediatricians. It is heartily recommended as a quick, easy to read authoritative reference of pediatric therapy.

GNADOTROPINS: PHYSICOCHEMICAL AND IMMUNOLOGICAL PROPERTIES, Ciba Foundation Study Group No. 22, edited by G. E. W. Wolstenholme, O.B.E., F.R.C.P., F.I. Biol. and Julie Knight, B.A., illustrated, pp. 125, published by Little, Brown & Company, Boston, Mass., 1965.

This booklet deals very largely with the chemistry and immunochemistry of gonadotropins. It is of virtually no interest to the practicing physician but would be of extreme interest to the full-time endocrinologist and gynecologist who are working in a research capacity in a university hospital. AK

CURRENT THERAPY, 1966, edited by Howard F. Conn, M.D., pp. 857, published by W. B. Saunders Company, Philadelphia and London, 1966.

This standard text is highly recommended as a quick reference for treatment in light of our present knowledge. Various sections are written by outstanding authorities. The style of the book makes for easy reading. The only drawback to such a book is that with so much information compressed into one volume, the discussion of any one topic is necessarily abbreviated. This begs the point—namely, this gives an easy outline on which to start therapy but, if one has a critically sick patient, it is an inadequate source of information. For the purpose for which this book is designed it is admirable and highly recommended to medical students, general physicians and internists. AK

TRANSCULTURAL PSYCHIATRY, Ciba Foundation Symposium, edited by A. V. S. De Reuck, M.Sc., D.I.C., A.R.C.S. and Ruth Porter, M.R.C.P., illustrated, pp 396, published by Little, Brown and Company, Boston, 1965.

This small book explores psychiatric problems in various cultures, as, for example, there is a discussion of social research in Africa, international surveys of psychological problems are reviewed, and the similarities and differences in the various cultures are discussed. This book is of limited interest to the average practitioner but is, no doubt, of great value to the psychiatrist interested in research. AK

IIASHISH: ITS CHEMISTRY AND PHARMACOLOGY, Ciba Foundation Study Group No. 21, edited by G. E. W. Wolstenholme, O.B.E., F.R.C.P., F.I. Biol. and Julie Knight, B.A., pp. 96, with 8 illustrations, published by Little, Brown and Company, Boston, 1965.

COLOUR VISION, Ciba Foundation Symposium, Edited by A. V. S. de Reuck, M.Sc., D.I.C., A.R.C.S. and Julie Knight, B.A., pp. 382, illustrated, published by Little, Brown and Company, Boston, 1965.



Human Liver After Radiation Injury

G. B. Reed, Jr. and A. J. Cox, Jr. (300 Pasteur Drive, Palo Alto, Calif) *Amer J Path* 48:597-612 (April) 1966

Histological changes in the liver were studied at intervals following heavy therapeutic irradiation. Fibrous occlusion of small efferent veins,

appearing without recognizable thrombosis, was associated with marked parenchymal atrophy and resembled the veno-occlusive disease that has been reported to follow poisoning by Senecio and Croalaria alkaloids. There was evidence of re-establishment of an effective hepatic circulation after four months with a return of structure to normal; little fibrosis was found.

An Histologic and Histochemical Study of Familial Osteoectasia (Chronic Idiopathic Hyperphosphatasia)

G. N. Stemmermann (Kuakini Hospital, Honolulu) *Amer J Path* 48:641-652 (April) 1966

Familial osteoectasia (idiopathic hyperphosphatasia) is a disorder of membranous bone showing increased amounts of alkaline and acid phosphatase, lactic dehydrogenase, acid mucopolysaccharide and reticulin in the lesional areas. The increase in these enzymes and the increased amounts of other chemically unrelated enzymes and chemical substances in the lesions can be explained on the basis of an increased mass of osteogenic tissue. The coexistence of increased membranous osteogenesis with decreased mature bone formation suggests a defect in the conversion of newly formed, coarsely woven bone into mature lamellar bone. The failure of these patients to bind tetracycline permanently would appear to substantiate this hypothesis.

Erythralgia

D. Alarcón-Segovia et al., *Arch Intern Med* 117: 511-515 (April) 1966

Erythralgia (erythromelalgia) is characterized by burning distress of the extremities accompanied by redness and increased temperature of the skin. These symptoms are often initiated by increased environmental temperature and are relieved by cooling of the skin. Erythralgia may be present long before a hematological abnormality is recognized. Thus, it can be an early clue to myeloproliferative disorders. In 7 of 51 cases of erythralgia, this syndrome was present as long as 16 years before polycythemia vera was detected. In one patient, it antedated the recognition of agnogenic myeloid metaplasia by seven years.



Sponsored by Arkansas Tuberculosis Association

EPIDEMICS OF TUBERCULOSIS

In a review of reports of 109 tuberculosis epidemics in 12 countries, adults were found to be the usual source of infection. None of the epidemics was caused by children with primary tuberculosis. Identification of the source case is essential to control of the epidemic.

A review of 109 epidemics of tuberculosis in 12 countries, 84 (75%) of which were in schools, permits of certain generalizations about tuberculosis epidemics.

Any outbreak of tuberculosis results from a combination of circumstances. First, a large proportion of the group of individuals exposed to tuberculosis must be tuberculin negative. This state is usually associated with a lack of acquired immunity and is seen particularly in young children or in older individuals living in geographic areas where the tuberculosis rate is very low. The second factor is the presence of an individual who is a disseminator of tubercle bacilli, almost invariably an adolescent or adult with pulmonary tuberculosis.

The sputum of the disseminator usually contains many tubercle bacilli which can be detected on direct examination. Culture of the sputum yields a high colony count. In patients from whom the bacilli can be recovered only by culture, there are usually fewer colonies. Such patients are less likely to be contagious and are therefore harder to identify as the source of epidemics.

However, all patients with large numbers of living tubercle bacilli in their expectorations may not be of the same degree of contagiousness. It has been reported that the number of bacilli a patient discharges into the atmosphere depends not only on the number of bacilli in his sputum, but also on the fluidity of the sputum, the frequency and forcefulness of coughing and sneezing, and such factors as whether or not the patient

covers his mouth when coughing.

An example of this was the rapid spread of tuberculosis in a military band in Great Britain. A 23-year-old clarinet player was found to have infected eight other persons connected with the band who developed active pulmonary tuberculosis.

Members of bands appear to exhale more air than the average person and with much greater force, probably keeping droplets airborne for a longer time, and producing a greater concentration of airborne bacilli.

ADULTS ARE SOURCE OF INFECTION

Most epidemics are traceable to adults with contagious tuberculosis. In schools the sources are usually teachers, but may be a bus driver or custodian, a cook or some other person who comes in close, even if brief, contact with the pupils. Many school epidemics also have been ascribed to older children or to adolescents with chronic pulmonary tuberculosis.

The potential contagiousness of children with primary tuberculosis has been questioned for many years. A child with recent pulmonary primary tuberculosis may be assumed to have a few tubercle bacilli in a gastric lavage. The question is whether this means that the child is contagious. Children with nonprogressive pulmonary tuberculosis rarely cough, and they do not expectorate. Therefore, they probably do not disseminate tubercle bacilli into the atmosphere. Many pediatricians have seen children with nontuberculous pulmonary disease spend months or years in hospitals with tuberculous children and not develop a reaction to tuberculin. In the present review there was not a single report of a school epidemic caused by a child with primary tuberculosis.

Another important factor in the production of epidemics is the environment in which the contact occurs. Overcrowding and lack of ventilation increase the chances of infection.

EDITH M. LINCOLN, M.D. *Advances in Tuberculosis Research*; Karger, Basel/New York, 1965.

SPOTTING THE EPIDEMIC

The early recognition of an outbreak of tuberculosis depends on how quickly the physician or health authority thinks of tuberculosis when a number of people in a small area have fever of unknown origin. Once tuberculin tests and subsequent chest X-rays are positive, the presence of an epidemic becomes obvious.

Multiple cases of erythema nodosum have been of help in arousing suspicion. Although relatively rare today, erythema nodosum is still a valuable guide to an epidemic of tuberculosis. Often epidemics are suspected as a result of finding a sudden increase in the number of tuberculin reactors in a community.

Most recognized epidemics develop in an incredibly short time. In one Norwegian village, an itinerant juggler caused 54 infections within a month. In such instances, it is clear that the exposed population has little or no acquired immunity and that the individual who is the source of infection has numerous bacilli in his sputum.

The first concern of the physician faced with an epidemic of tuberculosis should be to identify the source case. In schools this should not be difficult if all the personnel and older students are surveyed by tuberculin tests and by chest X-rays of all reactors. If the source is not found, the search must be continued outside the immediate classroom.

An adult or adolescent with active chronic pulmonary tuberculosis should be sent to a hospital or sanatorium for adequate therapy. An adolescent with pulmonary tuberculosis should not return to school until his disease is stabilized and cultures of sputum have been negative for three to six months.

CARING FOR THE CHILD

A child with symptomatic primary tuberculosis should be treated at home or in a sanatorium according to his medical needs and the ability of his family to give him adequate care at home. Students with asymptomatic primary tuberculosis should be allowed to stay in school provided they remain under medical supervision and take isoniazid daily for at least a year. The addition of PAS is a matter of opinion. Isoniazid is given primarily to prevent complications since no drug therapy is known to eliminate all tubercle bacilli from the body. Thus, following an epidemic all

tuberculin reactors should have chest X-rays at yearly intervals for an indefinite period. Home contacts should also be examined.

The tuberculin test is the most valuable tool for tuberculosis control. It permits the classification of those who are uninfected and hence susceptible to infection and those who have been previously infected with tubercle bacilli. As the rate of infection decreases, tuberculin surveys, with chest X-rays only of reactors, may become the method of case finding in adults as well as in children. It is essential to follow all the individuals known to react to tuberculin, particularly in countries with a low incidence of tuberculosis. Only in this way can pulmonary tuberculosis be found early, when it is most amenable to treatment.



Isolation of *Mycoplasma Pneumoniae* From Adults With Respiratory Infections

R. L. Jao, M. Rubenis, and G. G. Jackson (840 S Wood St, Chicago) *Arch Intern Med* 117:520-526 (April) 1966

Mycoplasma pneumoniae is the principal cause of primary atypical pneumonia. Methods for the isolation of the microorganism and for the serologic recognition of infection were developed. In a study of 254 adults with pneumonia or other acute and chronic respiratory illnesses, *Mycoplasma* was isolated from the sputum of one-half of them. *M salivarium* and *M pharyngis* were the predominant species, and they had no apparent pathogenic role. Complement-fixation was the most specific, and growth inhibition was the most sensitive serologic test for antibody against *M pneumoniae*. Cold agglutinin was the least discriminatory test. *M pneumoniae* caused a minimum of 9% of all pneumonia and was serologically associated with one-half of the cases diagnosed as atypical or viral pneumonia and one-sixth of the cases of broncho-pneumonia.

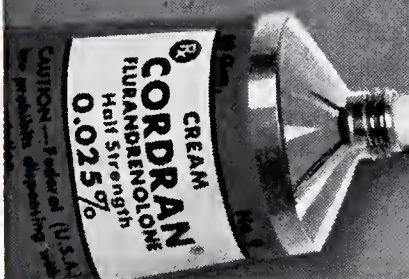
July, 1966

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 63 No. 2

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Medical Self-Help and Nutrition Courses in Central America

Frances C. Rothert, M.D., M.P.H.*

Tens of thousands of Arkansans have taken the Medical Self-Help Courses sponsored by the Arkansas State Department of Health, the State Civil Defense Agency, and the Arkansas Medical Society, with the assistance of the public and parochial schools. Similar courses have been particularly useful in Central America, where there are less than one-third as many physicians in proportion to the population, and where, off the main highways, roads are usually poor, or lacking. It may be hours or even days before a sick or injured person can reach a physician.

Furthermore, the illness or injury is in many cases complicated by malnutrition, especially in young children. Infant mortality in Central America is around three times that in the United States, but child mortality ranges, in the six countries, from 8 to 30 times as high. This terrific death rate reflects from frank malnutrition but contributing to many other deaths from gastrointestinal infections and the common childhood diseases.

Much of the large Food-for-Peace program in Central America as elsewhere in the world, is handled by U. S. Voluntary Agencies, such as CARE and Catholic Relief Services. The writer has been serving as Medical and Public Health Consultant for Central America and Panama for the latter agency, as a volunteer, since retiring from the Arkansas State Department of Health. Catholic Relief Services is associated in each country with a voluntary agency of the particular nation, usually called Caritas, and the actual work of determining which are the most needy families, and of the food distribution itself, is done by local committees under the supervision of the staff of Caritas, with responsibility through Catholic Relief Services to the U. S. AID mission and even-

tually to the American Ambassador. These committees of devoted Central Americans usually include instruction in the preparation of the sometimes unfamiliar foods in their services to the poor, and are eager to help their people in as many other ways as they can. In some of the larger cities, parent education, including first aid, and volunteer training, has been done for many years, but in the smaller places it has frequently been lacking. Local Health Departments are always understaffed, and the demand for curative medicine leaves little time for anything else.

Organizing volunteer training courses, particularly in nutrition and child health was obviously a much-needed activity of Catholic Relief Services and Caritas, so it was given priority, and the writer spent most of her time on it for more than a year.

When the content of the courses proposed was discussed with Health Department officials, Caritas personnel, and the volunteers themselves in several countries, requested that "first aid" be added. Since the writer had had experience with the Medical Self-Help Courses in Arkansas and since most of that material seemed practical for Central America, permission was obtained by the U. S. Department of Health Education and Welfare to translate it into Spanish and adapt it. This was done by a Guatemalan Public Health Nurse with advice and assistance by a Guatemalan Public Health physician. The first two lessons, on radioactivity and shelter living, were omitted. Large charts were traced from the filmstrips, in color, and later, smaller ones that could be mimeographed. These, the instructors' guide, and the lessons, in Spanish, were mimeographed in each country as the courses were given. Nutrition lessons were obtained from the Institute of Nutrition for Central America and Panama, an agency of the World Health Organization that does out-

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standing research and has developed excellent health education materials.

As finally evolved, the course includes, besides nutrition and the Medical Self-Help lessons, teaching methods as applied to the course, and, wherever possible, elementary interviewing and counselling techniques. The nutrition topics include nutrient groups and their uses in the body, their availability in local foods, types of malnutrition prevalent in the area, and the early symptoms of malnutrition, especially in children. A film, "Hungry Angels" produced by the Institute of Nutrition for Central America and Panama, showing case histories of two malnourished children and one normally developing child, is usually presented. In one country, the nutritionists showed slides of malnourished children and the same children after recovery. Food preparation demonstrations are always given, with emphasis on inexpensive local foods with high vitamin and mineral content, and protein-rich foods, and those donated under the Food-for-Peace program. The dishes prepared are then served for refreshments. Participants in the courses often assist in or perform these demonstrations, and their importance is thus stressed, as is the fact that in attempting to change food habits, taste is all-important.

The courses, of 24 or 25 hours given in four, five or six consecutive days, are held in National and provincial capitals, with students coming in from the surrounding towns and villages. We tried to have two or three representatives from each food distribution committee, and to limit the classes to between 30 and 40; but other groups wish to be represented, such as teachers, firemen, Scouting leaders, and the average attendance has been 50. So far, in 11 working months, we have given 25 courses in five countries—Guatemala, El Salvador, Nicaragua, Costa Rica and Panama, with a registration of about 1,300 persons from 120 towns and villages. Examinations are given before and after the course, but with only half the number of questions asked in the U.S. At

the close of the course, sets of teaching material, each of which amounts of more than 200 mimeographed pages, are given—not to each student—but one to each committee, town, or organization, so that it can be taught, first to the other members of the leader's group, then to food recipients or to the community. So far, more than 400 sets of material have been distributed.

Most of the actual teaching in these "Leadership Training Courses" is done by local physicians and nurses, and by nutritionists from the National Ministry of Health. Substantial assistance with these courses was provided by two volunteers from the United States or from the country. In the 25 courses, 140 persons have served as instructors, including 58 physicians, 24 nurses, 26 nutritionists and 32 others; social workers and teachers. Physicians and nurses and other competent individuals usually from the district health department or hospital, are given the text but told that although visual aids are keyed to it they should use it only as it is practical in the class, and request a complete set of the material for their later use a fine tribute to its practicality for Central America. Where the Red Cross is teaching first aid, they have loaned us their demonstration teams, and in many cases, their building. Much stress is placed on practice by the students, so that they will be able to teach others.

Followup has now been done on most courses. In one country, only three months after the course was given, when asked how many they had taught, only 17 gave figures, but they had taught an average of 22 each in the three months. Others said "all my high school students", "all the Boy Scouts", "the fire brigade", "the Mother's Club." All asked for more courses, and more advanced courses for those who had had the first one. Certainly the material with appropriate adaptation is most practical especially for rural areas, anywhere.

Frances C. Rothert, M.D., M.P.H.



New Drugs: The AMA and FDA Roles

James Z. Appel, M.D.*

The 1962 Kefauver-Harris Amendments to the Food, Drug and Cosmetic Act, although commendable in purpose, were enacted hastily in the hysterical climate engendered by thalidomide. The AMA opposed certain features of these amendments.

And . . . these undesirable aspects have been compounded by regulations subsequently issued by the Commissioner of the FDA to implement the law.

The medical and scientific communities were assured that there would be no interference with the practice of medicine or with bonafide drug research. There was further assurance that the implementation of the law and its regulations would encourage a higher quality of research . . . that the law and regulations would be completely and sensibly administered with due regard to the scientific and medical facts involved . . . and that the law and its regulations were primarily designed to correct alleged abuses involving the pharmaceutical industry.

In view of past performances and the ability of the pharmaceutical industry to provide the medical profession and its patients with increasing numbers of relatively safe and effective therapeutic agents, the AMA . . . while recognizing certain industry shortcomings . . . considers drug development an important medical resource. Thus, the AMA is sensitive to any regulatory activity which might seriously impair the future development or effective use of such agents.

Let us look at the record since adoption of the amendment. The regulations have these plus factors:

1. The FDA has—for probably the first time in its history—been provided with an adequate working budget.

2. It now has decent working space.

3. Its staff includes more competent physicians and scientists than ever before in its history.

4. It has established reasonable and potentially productive working arrangements with the medical and scientific communities, both of which are willing and anxious to be helpful.

5. It has established . . . particularly in the area of adverse drug reaction reporting and evaluation . . . potentially productive three-way work-

ing relationships with AMA and PMA.

6. It is attempting . . . with some success . . . the recruitment of additional competent physicians and scientists.

7. The more realistic working budget that has been provided permits the FDA to support outside drug research.

8. It is supporting an effective enforcement staff.

9. It is developing more effective rapport with other related, potentially helpful governmental agencies . . . especially the NIH . . . as well as with the medical schools in the Washington area.

10. And, probably more important of all—and this has been strongly supported in the past by the AMA—a qualified physician is not only available in the Commissioner's office but is now actually sitting in the Commissioner's chair. Furthermore . . . it seems likely that a scientist may also be appointed to a key position on the Commissioner's staff.

On the minus side:

1. The FDA physicians' staff has been and still is inadequate . . . qualitatively and quantitatively . . . to effectively administer the 1962 amendments and regulations, let alone those passed since and those currently proposed.

Thus . . . the medical bureau is poorly organized and not very productive. Probably a related factor is the relatively small number of New Drug Applications made effective since the 1962 law . . . the increasing backlog of steadily accumulating NDA's . . . and the inefficient monitoring of Investigational New Drugs. One cannot help but wonder how many useful therapeutic agents are caught in this administrative log jam that should have . . . perhaps long since . . . been in the hands of the profession to help patients. The fact that more drugs are coming to be available to physicians in foreign countries before they are available here is disturbing. All this suggests that drug development since 1962 has suffered a severe setback.

2. The manner in which the agency suddenly seizes drugs and accompanies this activity with alarming language tends to create an atmosphere of hysteria. It also is creating a restrictive and undesirable medico-legal climate that will inevitably exert a deleterious influence on the effective

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use of drugs by the physician. This trend is causing the medical profession much concern.

3. The apparent tendency to spread the regulatory umbrella over as broad an area as possible—dissemination of drug information, education of the physician and layman on drugs—and the apparent basic regulatory concept that the effective and safe use of drugs by physicians can be assured only by regulatory fiat—concern the AMA since the decisions not only denigrate the physician but destroy his freedom to practice the best medicine of which he is capable on each individual patient.

4. Another disturbing factor is that the FDA has not been able to attract or hold competent physicians in numbers adequate to effectively and efficiently evaluate NDA's in their files, let alone provide other services essential to effective FDA operation. We, too, have this problem to some degree so we can understand and sympathize. Unfortunately . . . we see no hope of the FDA improving this situation in the near future.

5. Of dubious benefit are requests from varied sources for unending investigations aimed at explaining professional activities and decisions to non-professionals.

6. Nagging us is the increasing suspicion that regulatory decisions may be dictated more by the technicalities of regulatory language than by appeal to competent medical and scientific analysis and judgment. Our Council on Drugs is concerned about this. The tame submission of the pharmaceutical industry to any and every regulatory suggestion or directive . . . regardless of the medical and scientific facts involved . . . is unsettling.

7. Another concern is the selective leaking of what should be confidential internal documents to journalists, who apparently are not knowledgeable of all the facts. This often results in dissemination of misinformation to the lay public.

8. At the time of the passage of the 1962 amendments and subsequent regulations, we were concerned about the advisability of non-medically oriented lay FDA Inspectors being permitted to inspect and copy the case records of physicians engaged in clinical investigation. This could only result in a non-professional acting as a judge in a professional area and also invading the physician-patient relationship. We have been apprised of incidents where such inspection has extended even to the personal file of an investigating physician. The future implementing of this aspect of drug

investigation cannot help but concern us.

9. The more than occasional FDA dissemination of information on drugs through the lay press to laymen can . . . and does cause needless harassment of the physician (by) his patient.

And, 10. A final concern is the frequent tendency demonstrated by the FDA to over-react to the results of limited animal experimentation.

It is our understanding that yours is the first specialty group which has had some unsatisfactory experiences with the FDA in its application of the new regulations to your investigative activities. You may be aware that our Council and Department of Drugs have kept in touch with the situation and have tried to be as helpful as possible to all concerned. We feel much of the problem is because of poor communications between your members and the FDA.

The FDA actions relative to oil emulsions as vehicles for allergens used in hyposensitization therapy is clearly within FDA purview under the existing laws and regulations. According to the requirements of the new law, objective evidence of safety and efficacy on the basis of controlled clinical trial data is insufficient. The FDA demands similar evidence for other drugs so your group is not being selectively discriminated against. You . . . like all other responsible citizens . . . must obey the laws and regulations. In a free country such as ours, you can press for change in objectionable legislation or . . . in this case . . . provide the type of controlled study the FDA must have.

Since a significant number of you consider such therapy helpful to your patients, certain of you have united as an action group, have consulted with the FDA and found it most cooperative, equally anxious to settle the thorny problem of efficacy of this therapy, and clearly cognizant that only allergists can provide the answer. It would seem that your whole specialty group would be interested in studies which could provide definite answers to this question. Would it not benefit all if you supported the development of an internal working group which . . . with appropriate consultants . . . could develop and implement a clinical study to which many of you could contribute effectively?

Once such an operation had proven its effectiveness, it surely would gain support from all sides and could turn its attention to solving other pressing problems in the allergy field. In fact

. . . this kind of clinical research activity by interested medical groups may be one way . . . perhaps the only way . . . to demonstrate both the benefits and the shortcomings of the present laws and regulations and add effectively to our store of useful medical knowledge.

Taking an objective view of the whole situation since 1962, unequivocal benefits and deficits of the laws and regulations concerning drugs developed then and subsequently, are difficult to clearly document. Since this is the case, we should continue to focus our attention on this important area of drug development until positive answers are forthcoming.

The AMA's interest and activity in the drug area parallel those of both the FDA and the pharmaceutical industry. Accordingly, we desire to cooperate fully and sincerely with both so far as this is possible in the best interests of the profession and the public. It is important to the profession and the public alike that such coopera-

tion be implemented as fully and as soon as possible.

We have always supported the concept of a responsible and effective FDA, a responsible pharmaceutical industry, and the development and dissemination of complete and unbiased information on drugs to the physician.

We hopefully expect to meet with Dr. Goddard in the near future to discuss areas of mutual interest and cooperation . . . other areas where better cooperation can be developed . . . and areas where the pharmaceutical industry and others might be induced to work more closely with both parties.

We strongly hope, and have every reason to expect, that the new administration of the FDA will not only be vigorous and forceful, but that it will seek the cooperation and expertise of the profession, the Industry, and others to do the best job possible in the public interest.

The FDA must realize the job is too big to go it alone.



Hereditary Factors in Cancer

H. T. Lynch et al (University of Nebraska College of Medicine, Omaha) *Arch Intern Med* 117:206 (Feb) 1966

Hereditary factors are clear in polyposis coli, retinoblastoma, xeroderma pigmentosum, neurofibromatosis, Gardner's syndrome, and the basal cell nevus syndrome. However, for most malignancies there is no simple genetic interpretation. Two large "cancer families" were studied, which are of interest from the following standpoints: (1) The wide distribution of the anatomical sites of the malignant neoplasms, (2) The intense concentration of malignancies in a sibship in both families. In one sibship, 8 of 13 members showed

carcinoma while 4 of these 8 disclosed multiple primary malignancies. In the second sibship, 9 of 11 members revealed malignancies, with 4 of the 9 showing multiple primary carcinomas (histological verification of all of these malignancies); (3) Malignant neoplasms were found in three generations of one family and in four of the second family; and (4) The frequent combination in the multiple primary carcinoma group included endometrial carcinoma and carcinoma of the colon in the females and carcinoma of the stomach and colon in the males. While the data fit indicate autosomal dominant inheritance, the possibility of "cytoplasmic inheritance" or viral factors is discussed as an alternate explanation of these phenomena.

Hearing Aids for Hard of Hearing Patients

A. J. Brizzolara, M.D.*
Richard R. Hawkins, M.A.

Recent advances in technology have greatly affected the electronics industry. Hearing aids, being electro-acoustic instruments, have naturally benefited by these innovations and have therefore been significantly improved and refined during the past decade. This has resulted in more hard of hearing patients being helped by this type of prosthesis. Many patients who were not previously benefited by a hearing aid because of only a slight loss, are now often able to use an aid successfully. Many others who used aids with questionable benefit are now finding that the improved instruments offer more satisfactory results.

One of the first problems to be considered when discussing hearing aids is patient selection. In discussing this problem let us first destroy the myth, which somehow has found an alarming degree of acceptance in the medical profession, that patients with sensori-neural (nerve) hearing loss are seldom candidates for hearing aids. This may have been the case twenty years ago, but certainly it is far from the truth today. In fact, since most middle ear problems are amenable to improvement through medical and surgical treatment, the majority of hearing aid users today are patients with sensori-neural hearing loss. It is true that the patient with middle ear pathology causing a conductive hearing loss will have fewer problems adjusting to the hearing aid, since his problem is mainly one of decreased loudness of sound. But it is also true that the patient with a sensori-neural hearing loss is the person most in need of any help he can obtain since his problem is two-fold. Not only does he experience a decrease in the loudness of sound but he also has a disturbance in the clarity of sound causing him to have difficulty understanding speech.

If both conductive and sensori-neural patients are possible candidates for a hearing aid, the next consideration then is the minimum loss lending itself to help from an aid, and the maximum loss which can be benefited by amplification. In other words, what are the limits at each end of the scale for determining who should and who should not wear a hearing aid?

For several years an average of 30 decibels hearing level (reference ASA-1951 standard) through the most important frequencies for speech on the audiogram (500, 1,000 and 2,000 cps) was considered the minimum hearing loss for consideration of a hearing aid. Most patients with a loss milder than this could not be expected to adjust satisfactorily to the wearing of an aid. Also, until recently it was not generally believed that the person with a hearing loss in the "profound" category (average of 75 dB or greater through the speech range) could benefit enough from an aid to justify its recommendation. In recent years, however, both of these ideas have changed, due mainly to the refinement of hearing aids. We now consider as possible candidates for hearing aids many patients with no more than 15 or 20 dB average loss through the speech range. At the other end of the scale, a person with any measurable hearing, even though profoundly deaf, can be expected to receive some benefit from amplification.

In determining a patient's need for a hearing aid and making recommendations concerning amplification we have established a procedure in our clinic which we feel has proven merit. If difficulty with hearing and/or understanding is one of the patient's complaints, and the otological findings are normal, a complete hearing evaluation is performed by the audiologist. This evaluation includes threshold testing for pure tones by both air conduction and bone conduction, speech reception testing, and obtaining speech discrimination (understanding) scores. Certain additional procedures such as tests for non-organic loss, or tests for determining if a sensori-neural lesion is cochlear or retro-cochlear, etc., may be performed if indicated.

In most "borderline hearing" cases it is very important to obtain certain additional information by carefully questioning the patient. It is helpful to know if the patient has ever tried an aid or if this is a "last straw" attempt to find help? Does he have a lot of social contact, or is he alone most of the time? Does he have misconceptions about the size and appearance of modern wearable hearing aids? (Some patients still picture the old instrument with a battery pack strap-

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ped to the leg, a microphone pinned to the shirt, and a cumbersome receiver sticking out of the ear). Does he mistakenly believe that he may "come to depend on" a hearing aid and therefore no longer be able to make maximum use of his residual hearing?

On the basis of the information thus obtained from the otological and audiological evaluation and a careful history taking, a decision is made for or against recommending amplification for the patient. If the patient does have a hearing impairment but a hearing aid is contraindicated, it is routinely advised that he return in approximately one year for a reevaluation to determine if his needs have changed.

If the results of our evaluation indicate that the patient is a candidate for a hearing aid he is then referred to a hearing aid dealer with recommendations regarding the type of aid we feel is best suited for him (air conduction or bone conduction, body or hear-borne aid, etc.) and which ear should be fitted. The choice of which ear to fit is determined mainly on the basis of the degree of loss in both ears, the shape of the pure tone threshold curves, and the speech discrimination scores. Occasionally a patient's hearing loss will lend itself to fitting with binaural hearing aids.

If the patient wishes to obtain the aid locally the dealer is usually contacted by phone and given our recommendations and then send a copy of our audiometric analysis sheet via the patient. If the aid is to be obtained from a dealer in another city our recommendations are forwarded with the patient. When the patient asks us to refer him to a specific dealer this is done on a rotating basis. Otherwise, he is instructed to choose the dealer himself from among the several major brands represented locally. The patient is then given the option of returning to us after he has worn the aid for at least a month, for soundfield testing with the aid to determine if he is receiving as much help as could be expected in light of his overall hearing problem.

The above procedure is followed when otological or audiological findings clearly indicate that a hearing aid is or is not needed by a patient. However, it is not uncommon for us to see a patient whom we consider to be borderline as far as amplification is concerned. There may be indications both for and against his wearing an aid. In such

a case we feel the best procedure is to arrange for him to undergo a trial period with an aid to determine the amount of help he can derive from one. Because of this need of some patients for a trial period, arrangements have been made with several of the local hearing aid dealers whereby the patient obtains the aid and wears it on a trial basis for not less than one month. At the end of this period should he decide the aid is not helping him he pays the dealer a nominal rental fee for the period he has worn it plus the cost of his earmold. If he decides the aid is helping him and he wants to purchase it, he pays the standard price for the instrument with no additional charge for the trial period.

If the foregoing procedures were followed more often with cases which are borderline as far as the wearing of an aid is concerned, there no doubt would be fewer aids in the proverbial dresser drawer and fewer frustrated hard of hearing patients running from one hearing aid dealer to another always hoping to find the magic instrument which will make speech clear and understandable for them.

One final consideration which has not been specifically discussed is hearing aids for children. The important factors here are that children who need hearing aids should be discovered and fitted at as early an age as possible, and that they be referred to the proper place for management.

The time to begin working with a hard of hearing or deaf child is the moment the problem is discovered regardless of the age. A hearing aid, if needed, can be fitted to very young children, even infants. We know of one case in the state where a child was fitted with an aid at the age of eleven months, and he appears to be responding well to amplification.

It is also of utmost importance that the parents of hard of hearing and deaf children be counseled and guided and helped to understand how vital a role they must play at home in helping the child to learn speech, language and lipreading, especially during the pre-school years.

Not only is age not a limiting factor in considering a hearing aid for a child, but neither is the severity of the hearing loss. It is now recognized procedure for a hearing aid to be recommended for every deaf child, in some cases even where there may be no measurable hearing. Even though the child may receive only a part of the amplified

speech sounds this will be helpful to him in developing his own speech and will serve to supplement his lipreading with auditory clues.

Hearing aid manufacturers are now developing aids designed especially for profoundly deaf children who may have measurable hearing only in the very low frequency range.

Although the past decade or two has seen tremendous strides made in the improvement of hearing aids there still remain unsolved problems and areas for improvement. We need aids with improved amplifiers which will selectively amplify certain frequency ranges, provide sharper rise and decay time of the amplified signal, give better

compression amplification, and in general offer the patient less distortion of amplified speech.

There is current research with an electronic device which can be surgically implanted in the temporal bone of patients with sensori-neural hearing loss, which seems to hold some promise.

Although it is impossible to predict what the next decade or two will bring in the way of advances in hearing aids we do feel significant improvements and refinements will be forth-coming. The end result will be more satisfactory management of the long neglected patient with a sensori-neural hearing impairment.



Ischemic Contracture of Muscle Associated With Carbon Monoxide and Barbiturate Poisoning

A. J. G. Howse and H. J. Seddon (234 Great Portland St, London) *Brit Med J* 1:192 (Jan 22) 1966

Two patients suffering from carbon monoxide poisoning and two from barbiturate poisoning presented with ischemic contracture of muscle indistinguishable from the traumatic lesion first described by von Volkmann. The damaged muscles were at sites subject to pressure by no more than the weight of the part during the time when the patient lay unconscious. Nerve trunks in the regions that had been compressed were also affected, again as in Volkmann's contracture. This disorder of muscle and nerve may be due to a combination of general anoxia and local pressure, neither of which alone would cause the damage. There were associated skin lesions, described as burns by those who first saw the patients because of the blistering, which were also probably ischemic in origin. Treatment is the same as for any traumatic ischemia.

Nodular Fasciitis

A. H. Mehregan (University of Alberta, Edmonton, Alberta, Canada) *Arch Derm* 93:204 (Feb) 1966

Nodular fasciitis appears as a single, rapidly growing, firm subcutaneous nodule most commonly found over the arm and forearm. It is associated in slightly more than half of the cases with some tenderness or pain. The growth consists of proliferation of young and active fibroblasts and small capillary blood vessels in a mucinous stroma. It is usually composed of a central solid mass with many irregular projections extending outward into the surrounding fat tissue, thus resembling a highly invasive growth. Benignity of this growth is well documented by a long-term follow-up of the cases. Presence of perivascular inflammatory infiltration and granulomatous reaction consisting of foamy histiocytes and multinucleated giant cells, together with deposition of acid mucopolysaccharides in between the fat cells at the periphery of the fibrous nodule, points to a primary damage to the fat tissue.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., Professor, and Chairman
STACY R. STEPHENS, M.D., EDITOR

EXTRAOVULAR SALINE-INDUCED ABORTION

Dwayne D. Jones, M.D.*

Physicians have long sought a means of emptying the uterus vaginally without adverse side effects. Eastman states that vaginal therapeutic abortions should not be done after 12 weeks since the incidence of complications rises sharply after that time. Complications include perforation of the uterus, hemorrhage, and retention of placental fragments.

The purpose of this paper is to consider the usefulness of extraovular saline injection when it is desirable to empty the uterus in cases of therapeutic or missed abortion. Consideration will be given to the theories of the mechanism of action of hypertonic saline, and the complications thereof.

Over the past 20 years a number of drugs have been instilled into the uterus to induce therapeutic abortions, particularly in Scandinavia, Germany, and Eastern Europe. Solutions of formalin, soft soaps, and hypertonic glucose have been injected into the cervix. However, most of these have been abandoned because of the many complications. Brosett¹ described a method of transabdominal intraovular instillation of 50% dextrose plus 500 mg. terramycin. The fluid was injected in a volume equal to the maximum volume of amniotic fluid which could be withdrawn. He reported no complications or failures in 54 cases. This method is receiving wide use in this country today for the induction of labor in cases of patients with late missed abortion and fetal death in utero.^{2,3}

In Denmark, Svane⁴ introduced saline extraovularly into the uterus for the purpose of abor-

tion. A 20% solution of sodium chloride was instilled into the uterine cavity through a straight rubber catheter introduced into the cervical canal. The quantity of saline varied with the duration of the pregnancy.

EXPERIMENTAL PROCEDURE

A modification of Hans Svane's method was used in all cases irrespective of the duration of the gestation and the reason for which it was done. The procedure was carried out at the University of Arkansas Medical Center in a total of five cases during 1963-64. Four of the patients had diagnosed intrauterine fetal death and one underwent therapeutic abortion. Length of gestation was 8 to 24 weeks.

TECHNIQUE

A sterile solution consisting of 20% sodium chloride in distilled water is used. The amount of saline injected is computed from length of gestation. For the first twelve weeks of pregnancy 50 cc. is used. An additional 10 cc. is added for each successive week.

After the external genitalia are shaved and thoroughly washed with soap and water, the patient is routinely examined. The remainder of the procedure is carried out under sterile conditions.

Equipment consists of a number 20 French red rubber catheter, one three way stopcock, a 50 cc. Luer lock syringe, one sterile basin, and a sterile 20% sodium chloride solution. The blunt end of the catheter is clipped until it fits the outlet of the stopcock. The patient is then draped in the usual fashion for an obstetrical delivery. The cervix is exposed by means of speculae, and the French catheter is carefully introduced into the

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cervical os with sponge forceps. The tip of the catheter is advanced outside the membranes until it will go no further. It should be noted that dilatation is not necessary and no cervical trauma occurs. The desired amount of sterile saline is then drawn into the syringe and slowly injected after aspiration reveals no evidence of bleeding. Some of the saline will leak from the cervical os and in one case the initial injection was repeated immediately because all of the saline had leaked out.

The patient is then put to bed in a labor room and required to remain in a supine position for one hour after the injection. No premedication is usually necessary for the procedure.

RESULTS

In our series of five cases all were seen to abort within 9 to 30 hours after injection was completed. It was not necessary to give more than one injection and no oxytocics were used. Four patients were curetted immediately after their abortion. Blood loss was not excessive.

COMPLICATIONS

No serious complications were noted. Three patients had transient temperature elevation on the first day following expulsion and D & C. In one case the patient's temperature rose to 102 degrees and was treated with oral tetracycline. Her temperature rapidly returned to normal within 24 hours. The other two patients had temperatures of 100 and 101.4 degrees, and these returned to normal within 12 hours after adequate hydration. All patients were discharged afebrile without any prolongation of hospitalization.

DISCUSSION

The procedure utilized here was first described by Hans Svane in 100 therapeutic abortions. He resorted to a course of oxytocics if no abortion occurred in 24 hours after injection. If, after using oxytocics for 48 hours abortion still had not occurred, he reinjected the saline. The method was considered a failure if no abortion occurred after three injections. In this series, the duration of pregnancy was from 8 to 21 weeks. Eighty of the women aborted after the first instillation, 14 after the second, and 2 after the third. Seventy-three percent aborted within the first three days after injection. Four of his series were considered to be failures and operative evacuation was carried out. All patients had a curettage after they aborted. Complications consisted of three patients with temperature elevations, three with hemor-

rhage secondary to retained placenta, and one with a central rupture of the cervix. He reported no maternal deaths. Svane concluded that saline instilled extraovularly into the uterus involved little risk and was an effective method of interrupting pregnancy.

Nilson,⁵ at the University of Gothenberg, studied 128 legal abortions. His group modified Svane's technique in that a standard dose of 150 ml. of 20% sodium chloride plus 500 mg. of terramycin was used irrespective of the length of gestation. No oxytocics were employed. If no abortion occurred after four days the patient was re-injected. After two injections the method was considered to have failed and the uterus was evacuated operatively. A curettage was carried out routinely after the abortion occurred. Out of 128 patients studied 106 aborted within 72 hours after one instillation. Ten patients aborted after two injections. This method failed in 12 cases. The only major complication was a febrile course in eight patients whose fever spontaneously subsided.

According to Svane the risk of hemolysis is very little and of no practical significance even if the saline is injected intravascularly. He found that momentary hemolysis occurred when one drop of citrated blood was added to 1 ml. of 20% saline solution. By adding diminishing quantities of 20% saline to 1 ml. of citrated blood and to 1 ml. of defibrinated blood, it was shown that 0.03 ml. produced slight hemolysis while 0.01 ml. produced no hemolysis. These investigations demonstrated that some hemolysis might occur in vivo should some of the saline be introduced intravascularly but since the saline would rapidly be diluted in the circulation it appeared improbable that hemolysis of any clinical significance would occur.

Armis and Jepsen⁶ studied the effects of saline induced abortion. They concluded that some of the saline entered the circulatory system and a moderate degree of hemolysis occurred but was not detrimental to the patient.

It is not clear how saline acts in interrupting pregnancy. Most of the studies have been done after intraamniotic injection of saline.

It has been shown that the immediate increase in uterine activity after injection of hypertonic saline is due to increase in uterine volume.^{7,8} This volume increase raises the resting pressure of the uterus and increases moderately the active pressure. After a several hours latent period on-

set of labor occurs.

In studying the physiologic factors concerned with the maintenance of pregnancy, Csapo investigated the idea that the continuance of pregnancy was supported by the corpus luteum and the placenta through the progesterone which is produced. He postulated that progesterone blocks the activity of oxytocics on the myometrium. If the progesterone block is removed, labor ensues. If exogenous progesterone is supplied, the block is restored and the pregnancy is maintained whether the fetus is dead or alive.

A diminishing progesterone level has been demonstrated by Nilson⁵ in urinary determinations of pregnandiol excretion. The pregnandiol excretion showed a precipitous drop from the time of sodium chloride instillation until abortion took place.

King⁹ showed that the biological half life of radioactive sodium in amniotic fluid was 4½ to 5 hours. Radioactive sodium level in blood was seen to reach maximal values in 8 hours after instillation. His results suggest that significant alterations in amniotic fluid volume and concentration of electrolytes occur early in the latent phase and could well account for the subsequent onset of labor. No change in total blood sodium concentration was found with the injected sodium load.

Still another theory of investigation is that sodium chloride when absorbed causes an increase in anti-diuretic hormone which itself is felt to have an oxytocic effect.¹⁰

Further studies are under way to cast more light on the mechanism of action of hypertonic saline, injected both into the amniotic cavity and extra-ovularly.

SUMMARY

A method for early interruption of pregnancy for missed or therapeutic abortion has been de-

scribed. All five women in our series were observed to abort within 30 hours after injection. Our results closely parallel the reviewed series with the exception that no reinjections were necessary, oxytocics were not used, and there were no failures. No serious complications were observed.

CONCLUSIONS

1. The method of extraovular hypertonic saline is effective in producing abortion.

2. This method appears to be simple and relatively safe.

3. The mechanism of action has not been definitely established.

4. This procedure is a valuable tool to the physician. However, its indications are few and it should be employed judiciously.

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WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

ANSWER ON PAGE 82



13-61-40

41 year old female

HISTORY: The patient complained of weakness and fatigue for about two years. For several years she had worked as an analyst in a laboratory of the mining division of an aluminum ore company. She tasted Bauxite ore samples. Uranium was reclaimed from these samples by a chemist.

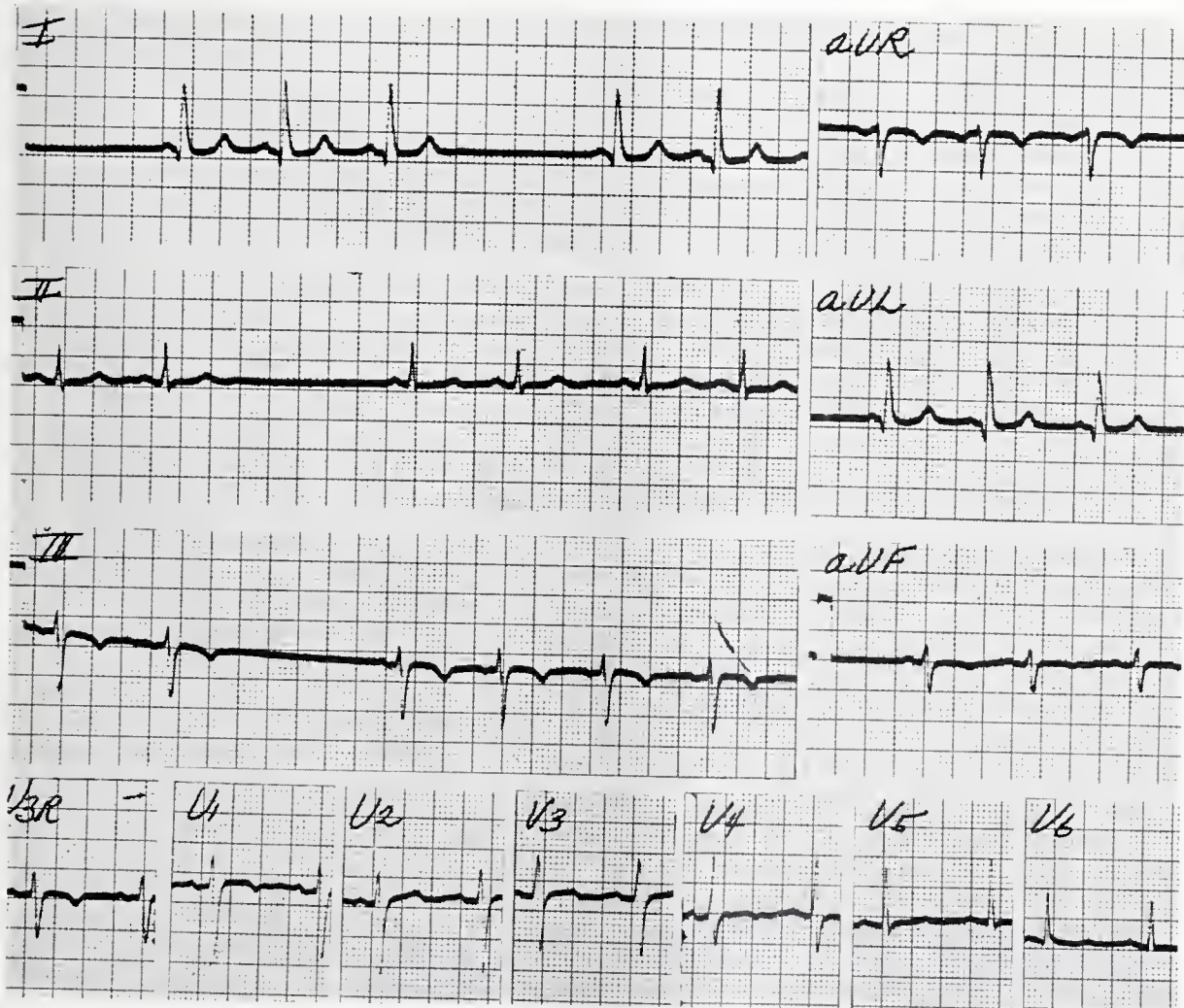


ELECTROCARDIOGRAM

OF THE MONTH

AGE: 44 SEX: F BUILD: Medium BLOOD PRESSURE: Normal
CARDIAC DIAGNOSIS: Angina (?), Premature ventricular contractions (?)
OTHER DIAGNOSES: Right Adnexal Mass
MEDICATION: None
HISTORY: Vague complaints

ANSWER ON PAGE 82



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

in diarrhea

LOMOTIL®
Tablets
Liquid

Each tablet and each 5 cc. of liquid contains:

diphenoxylate hydrochloride 2.5 mg.

(Warning: May be habit forming)

atropine sulfate 0.025 mg.



is a corker

Effectiveness: Lomotil possesses a unique degree of effectiveness in both acute and chronic diarrhea.

Convenience: Lomotil is supplied as small, easily carried, easily swallowed tablets and as a pleasant, fruit-flavored liquid.

Versatility: The therapeutic efficiency, safety and convenience of Lomotil may be used to advantage alone or as adjunctive therapy in diarrhea associated with:

- **Ulcerative colitis**
- **Acute infections**
- **Irritable bowel**
- **Regional enteritis**
- **Drug therapy**
- **Food Poisoning**
- **Functional hypermotility**
- **Malabsorption syndrome**
- **Ileostomy**
- **Gastroenteritis and colitis**

Dosage: For full therapeutic effect — Rx full therapeutic dosage. The recommended initial daily dosages, given in divided doses, until diarrhea is controlled, are:

Children: 3 to 6 months — 3 mg. ($\frac{1}{2}$ tsp.* t.i.d.)
6 to 12 months — 4 mg. ($\frac{1}{2}$ tsp. q.i.d.)
1 to 2 years — 5 mg. ($\frac{1}{2}$ tsp. 5 times daily)
2 to 5 years — 6 mg. (1 tsp. t.i.d.)
5 to 8 years — 8 mg. (1 tsp. q.i.d.)
8 to 12 years — 10 mg. (1 tsp. 5 times daily)

Adults: 20 mg. (2 tsp. 5 times daily or 2 tablets 4 times daily)

*Based on 4 cc. per teaspoonful.

Maintenance dosage may be as low as one-fourth the therapeutic dose.

Precautions: Lomotil, brand of diphenoxylate hydrochloride with atropine sulfate, is a Federally exempt narcotic preparation of very low addictive potential. Recommended dosages should not be exceeded. Lomotil should be used with caution in patients with impaired liver function and in patients taking addicting drugs or barbiturates. The subtherapeutic amount of atropine is added to discourage deliberate overdose.

Side Effects: Side effects are relatively uncommon but among those reported are gastrointestinal irritation, sedation, dizziness, cutaneous manifestations, restlessness, insomnia, numbness of extremities, headache, blurring of vision, swelling of the gums, euphoria, depression and general malaise.

SEARLE

Research in the Service of Medicine



TULAREMIA

Tularemia is widely distributed throughout the world. Tick associated cases of tularemia were first emphasized by Drs. A. M. Washburn and J. H. Tuohy of the Communicable Disease Control Division of the Arkansas State Health Department. Ticks have continued to be the prime vector in the spread of tularemia in Arkansas. Wildlife, especially the fur-bearing animals and rabbits in particular, appears to be the reservoir of the disease in nature. As careful histories are taken, the importance of other species as well as rabbits becomes more apparent.

The clinical course of the disease is usually first recognized by the onset of chills and fever, culminating in prostration with the patient going to bed voluntarily. The astute clinician will be on the lookout for a previously unnoticed ulcer at the site of the original infection, usually at the site of the tick bite or frequently on the hands of an individual who has handled game or dead animals. The regional lymph nodes become swollen, tender, and often suppurate. Ideally, diagnosis may be confirmed by inoculation of laboratory animals or culture plates with material from the lesions or sputum with subsequent identification of the *Pasteurella tularensis*. Agglutination reactions with rising titers may be utilized in making a presumptive diagnosis.

With the advent of antibiotic therapy, fatality is now negligible, although in untreated cases the fatality is about five percent.

All ages are susceptible. Permanent immunity apparently follows recovery in some cases; however, local cutaneous reaction may occur at the point of contact with contaminated material even

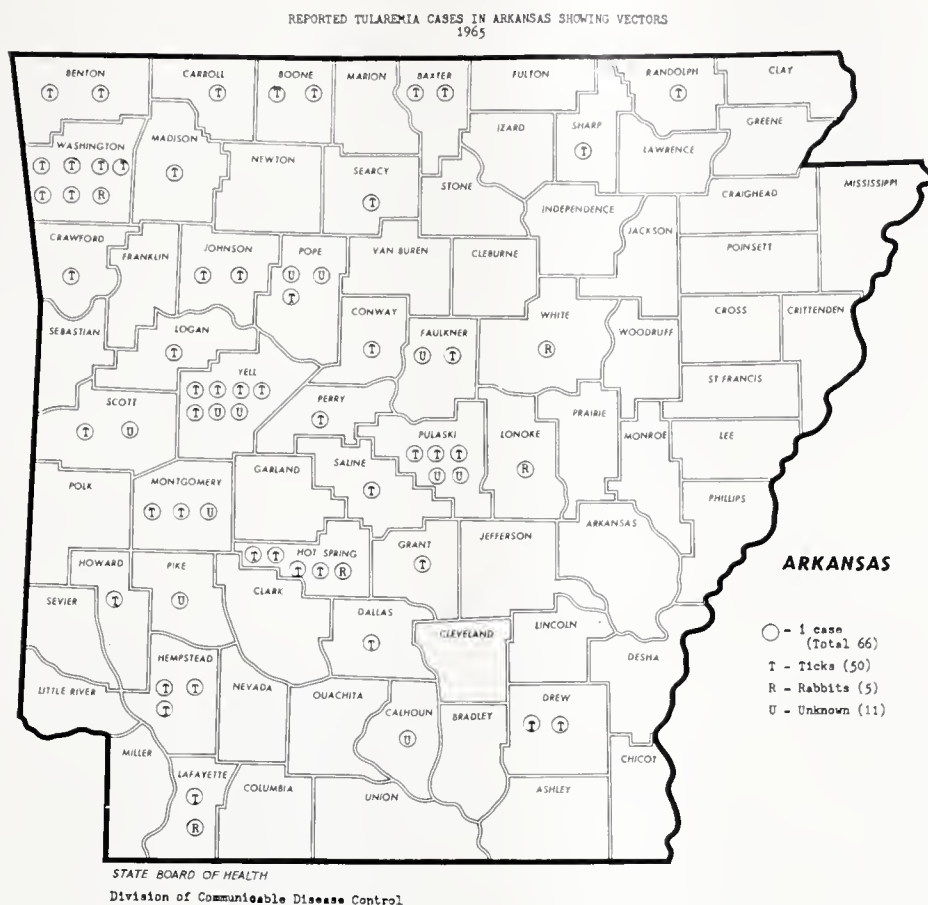
though the presumed immune individual may show no systemic symptoms. Killed vaccines are of limited value. Live vaccines are used extensively in USSR but little elsewhere. Dubose states that the case fatality rate in Russia is only one percent.

Preventive measures utilize avoidance of the infectious agent through education of the public to prevent exposure by vectors, by direct contact with animals, and by refraining from drinking raw water where infection prevails among wild animals even though the stream may appear clear and inviting. Plastic or rubber gloves may be worn when dressing wild rabbits or other animals or performing laboratory experiments. Face masks should also be worn in the laboratory when working with *P. tularensis*. Game should be thoroughly cooked, especially wild rabbits. Infected animals or their carcasses should be prohibited from being shipped from one area to another.

Specific treatment is by streptomycin, tetracycline, or chloramphenicol; it should be continued until temperature has been normal for from four to five days.

VECTORS OF REPORTED TULAREMIA CASES IN ARKANSAS 1961 - 1965

Year	Total Cases	Tick	Rabbit	Squirrel	Deer	Unknown
1961	60	41	7	1	1	10
1962	60	38	7	2	-	13
1963	81	58	-	4	1	18
1964	67	37	7	3	-	20
1965	66	50	5	-	-	11



Iron Absorption in Acute Hepatitis

L. A. Turnberg (Royal Infirmary, Oxford Rd, Manchester, England) *Amer J Dig Dis* 11:20-26 (Jan) 1966

The subjects of the study were five patients with acute infective hepatitis, six patients with cirrhosis, and four with obstructive jaundice, and six normal male student volunteers, aged 21 to 23 years, as controls. Iron absorption was increased in five patients with acute hepatitis; this increased absorption may partly explain the increase in serum iron noted in the disease, but other factors must also be involved. A redistribution of iron within the body may play a part in producing the observed serum iron rise to above normal and the later fall to below normal levels.

Pain in the Neck and Arm: A Multicenter Trial of the Effects of Physiotherapy

British Association of Physical Medicine (Lincoln's Inn Fields, London) *Brit Med J* 1:253 (Jan 29) 1966

A total of 493 patients with pain in the neck and arm were examined clinically and roentgenologically with a six-month's follow-up. Factors influencing short-term prognosis were assessed. In a clinical trial 466 patients were divided into five groups receiving five types of therapy; neck traction, collars, instruction in posture, placebo physiotherapy, and placebo tablets. The same number recovered in each group. After four weeks 75% of the patients were cured or had mild symptoms.



EDITORIAL

Long-Acting Thyroid Stimulator

Alfred Kahn, Jr., M.D.

The thyroid gland and the factors which affect it have been studied probably more intensively than any other endocrine. There have been outstanding contributions in this field as Marine's work on goiters, Astwood on Chemotherapy of hyperthyroidism, Lawrence and others on the use of radioisotopes and toxic goiter, etc. The thyroid gland normally functions like any feedback phenomena with the principal known controls consisting of thyrotropic hormone of the pituitary, the thyroid hormone, and iodine.

In disordered thyroid states some phenomena could not be explained on the previously known substances which interact to control thyroid function. One of the first to recognize this was D. D. Adams (*Journal of Clinical Endocrinology*, Vol. 18, page 699, July, 1958) who described the presence of an abnormal thyroid stimulating hormone in the serum of some patients with thyrotoxicosis. The abnormality consisted of "a marked prolongation of the time course of response"; for example the I^{131} concentration in guinea pig plasma after injection of normal TSH should be higher at 3 hours than 16 hours; using the abnormal TSH, the reverse was true. This abnormal substance has become known as Long-Acting Thyroid Stimulator (LATS).

Recently, Pimstone, Hoffenberg, and Black reported on parallel assays of three plasma substances in patients who were euthyroid and hyperthyroidism with and without exophthalmos. The three substances assayed were thyrotrophin (TH), LATS, and exophthalmos producing substance EPS. It is of major interest that in every case of exophthalmos whether the patient was hyperthyroid, or euthyroid, the LATS assay was positive. Some LATS activity was noted in patients without

exophthalmos. The authors felt that LATS paralleled exophthalmos but not hyperthyroidism. In the discussion of their paper, Pimstone, et al. cite the evidence for feeling that LATS does not originate in the pituitary, namely that it appears even in patients who have had hypophysectomy; and it is not found in homogenates of the pituitary gland of patients with exophthalmos. EPS is felt to originate in the pituitary. Also of interest was the fact that LATS seemed to be associated with pretibial edema. Adrenal steroids are said to decrease LATS activity and exophthalmos in large doses but not in small doses; decrease in hyperthyroidism does not parallel this fall in LATS.

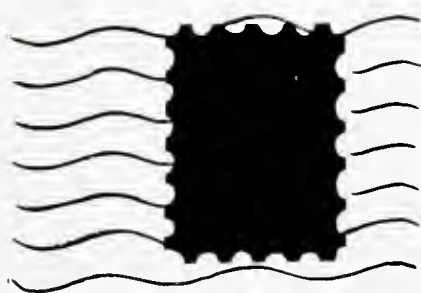
Kriss, Pleshakov, and Chien (*Journal of Clinical Endocrinology*, Volume 24, page 1005, October, 1964) have studied LATS and its relationship to hyperthyroidism and pretibial myxedema. They cite references which indicated that LATS was present in most patients with hyperthyroidism but that it did not parallel exophthalmos; this is at variance with Pimstone who is cited above. Using a very refined technique, Kriss and his co-workers were able to get an eight-fold increase in the purity of LATS samples. They identified LATS as a 7-S gamma globulin. Partially breaking up the protein by digestion destroyed its activity. Speculation is raised as to whether or not LATS is anti-body since it is chemically and physically related to gamma globulin. The fact that LATS is suppressed by adrenal corticosteroids suggests LATS could be an antibody. LATS plasma level falls on exposure to thyroid tissue and it appears to be localized in or on the thyroid nucleus, further suggesting an antigen-antibody reaction. The locale is different from the cytoplasmic antibody localization in

Hashimoto's thyroiditis. The authors do not ascribe a hormone function to LATS but believe that LATS might injure some repressor substance in the thyroid cell, thus allowing for some intracellular chemical process to proceed beyond the normal limits. LATS was found to be elevated in the plasma of cases of pretibial myxedema and the authors have suggested a scheme to explain this also.

LATS is an example of an interesting new finding in a much studied endocrine system.



LETTERS



TO THE EDITOR

May 20, 1966

Alfred Kahn, M. D., Editor, Journal of the
Arkansas Medical Society
1300 West 6th Street
Little Rock, Arkansas

Dear Alfred:

Enclosed is a report I am sending to the Council. Please publish it in the Journal.

Sincerely,
J. V. Busby, M.D.
Resident in Psychiatry

As the recent program chairman of the State Medical Society's annual meeting, I have been forced to give some thought to that meeting. I'd like to pass on some questions with some of my conclusions for your consideration.

What is the function of a State Medical Society Meeting? I assume the Constitution would state that the meeting had two functions: to conduct the business of the Society; to disseminate scientific knowledge. There the Constitution would conclude and would not consider many equally important individual and personal rea-

sons of those persons attending. A few of these, but by no means an all inclusive list, might be: renewing old acquaintances; resting from practice, repaying social obligations; getting away from it all; living it up; letting your hair down; having a chance to visit with your wife; class reunions; having a chance to brag or gripe a bit; fellowship; golf; and many, many more.

I contend that the meeting as it is now executed, fulfills most of these functions well with one glaring and expensive exception: namely the dissemination of scientific knowledge. This exception can only be corrected by deciding to whom we are to disseminate scientific knowledge. Until this is decided, every program will fall short. Arkansas is blessed with thirteen functioning medical specialty organizations. Each specialty group rightly wants representation on the program. However, the subject matter is not technical enough to be helpful to the members of the specialty; and persons who are not in that special field, excepting the inquisitive GP, are simply not interested. A few examples from our last meeting: "What Can One Do About Warts?" presented at 3:30, May 2nd by Dr. Curtis. I contend that Dr. Curtis should not be able to give much information to the dermatologist who is current. Furthermore, this subject had no appeal for orthopedists, otolaryngologists, obstetricians, or ophthalmologists, unless, perhaps, he happens to have a wart and doesn't know a dermatologist he can call.

Another example: "Marriage Counseling" given by Dr. Waggoner (who is head of his department, as is Dr. Curtis) held little interest for psychiatrists—for only two were in the room. The other 38 persons were either picking up a few pearls, resting, being polite, or waiting for the next speaker. I assume that there were no pathologists, anesthesiologists, or dermatologists in this group. These same comments could be made of each of the 44 papers presented. In summary, there is great effort and expense to give so little to so few.

Now let's look at expense. There were fourteen speakers invited by the Society. I'll guess that their average travel and hotel expense would be about \$300.00 give or take \$50.00. This would amount to somewhere between \$3500 and \$4900. Let's call it \$4000.00 for travel expense alone. Next there is the question of honorarium. Our society pays none—which I feel is a form of free loading because of financial limitations. I would like to

see a minimum honorarium of \$200.00 for the first day and \$100.00 for each additional day. This is not only reasonable but just. The speakers are depriving themselves or their institution or more than this in fees that could be earned during their time away. So let's say that someone—the speaker, his institution, or hopefully the Society, in the future, is out another \$300.00 per speaker for honorarium. This amounted to another \$4,000.00 for the past meeting. The summation of travel and honorarium should have come to \$8,000.00.

\$8,000.00 is reasonable for dissemination of good scientific knowledge to many physicians. True, but this was not the case. An average of 80 physicians actually attended the talks (this I spot checked many times). So it comes down to about \$100.00 per attendant for the whole scientific session. Someone is out. I question the value received when very few specialists attend their own specialty speaker's talk and cross specialty interest is low.

In the past, intra-state exchange of scientific knowledge was important because of travel limitation and also practical because of homogeneous interests. This was true of 50 years ago. Presently travel limitations are non-existent — for one can traverse the U.S. in approximately the same length of time it took a 1916 physician to get to Hot Springs from Little Rock. I do not see where it is the function of the Arkansas Medical So-

cietly to hold specialty meetings but rather the responsibility of each specialty to do this on a state level if their group sees fit. Therefore I contend that we have outgrown the need for an intra-state scientific meeting—we are just holding on sentimentally to a remnant of the past.

In place of the meeting, as it now exists, I propose a two day meeting to transact the business of the Society—the scientific portion be abandoned! The other personal functions of the meeting should be maintained—such as golf, renewing acquaintances, etc. In lieu of the omnibus scientific meeting I suggest that members of the specialties go to a specialty meeting and get the most out of it. What about the G.P.? He too has his meeting on a state and national level as well as many post graduate seminars at various universities—which are more meaningful to him. (Incidentally, these seminars are rather poorly attended and more would be offered if there were more encouraging attendances.)

In conclusion, I believe that the omnibus scientific portion of a State Medical Society meeting is expensive, redundant, and meaningless. It should be gracefully abandoned as one of those fine things of the past which no longer fit into the scheme of our modern world.

Respectfully,
J. V. Busby, M.D.
Resident in Psychiatry

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Radiopaque probably radioactive material, deposited in liver, spleen and regional lymph nodes.

X-RAY FINDINGS: The extreme density of the material as deposited in the reticuloendothelial system of the areas indicated is characteristic of the appearance of radioactive colloids such as Thorotrast which formerly were occasionally injected intravenously. The patient was not aware of this form of treatment ever having been given to her.

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: 65 **RHYTHM:** Sinus Arrhythmia with sinus arrest

PR: .17 sec. **QRS:** .08 sec. **QT:** .33 sec.

ABNORMAL: Frequent cessation of activity of S-A node. Changing pacemaker.

COMMENT: This arrhythmia called sinus arrest or sinus pause or S-A block is frequently associated with increased vagal activity with or without the presence of heart disease.

MEDICINE IN THE



FRINGE BENEFITS FOR MEDICAL SCHOOL FACULTIES

Seventy-four U.S. medical schools recently reported their 1965-66 fringe benefit programs for full-time faculty members. In Table 1, the diversity of benefits offered by the programs of the reporting schools may be seen in the listing of the number of schools offering each major benefit.

In order to assess the dollar value of either single benefits or an entire fringe benefit program to a faculty member, it is necessary to consider his individual characteristics. The value of life insurance and health insurance programs is directly related to the individual's age which also dictates the cost of their provision by the medical school. The school's contribution to retirement programs is usually based on a percentage of the faculty member's annual salary. In addition to the variations in value of the preceding benefits, such other benefits as reduced or free tuition for children, malpractice insurance, etc., have value only to those who can use them.

In order to provide some estimate of the value of the fringe benefits offered by a school, it was necessary to assume standard characteristics for the individual faculty member. Thus, a fixed salary level was selected, uniform estimated values were assigned to each benefit, and the assumption made that all benefits applied to the individual. This methodology has been applied to the distribution presented in Table 2 of the value range of the total fringe benefit program at reporting schools as it relates to a hypothetical faculty member earning \$20,000 a year and receiving all available fringe benefits. The arbitrarily established assumptions made in Table 2 do not yield an accurate measure of the value of the benefit program to individuals but they do reflect relative differences in value among schools.

THE MONTH IN WASHINGTON

Washington, D.C.—The importance of the role

of the general practitioner is emphasized in the recommendations of the National Commission on Community Health Services to President Johnson.

The Commission said that everyone should have a personal physician, even under the group practice system. Under these conditions, the commission added, group practice should be stimulated. It is essential that the physician-patient relationship be strengthened "if comprehensive personal health services of high quality for each individual are to be achieved," the commission said.

"The long range import of the recommendation of having the personal physician assume responsibility as the central source for preventive health service and continuing care, most particularly its impact on medical education, is well appreciated.

"The possibility of attracting a sufficiently large number of medical graduates to careers as personal physicians presupposes a general recognition of the importance of the role and commensurate rewards in professional satisfaction and income comparable to that of other physicians. In all its ramifications, the national effort must be comparable in magnitude to that which expanded medical research personnel in the last two decades. Large scale financing will be necessary for the support of teachers, students, facilities, programs and educational research."

Other commission recommendations included: breaking down eventually all separate systems of health care such as for veterans, labor members, merchant seamen, and the medically indigent; orienting all health care services on a community basis.

President Johnson endorsed the recommendations, but predicted that it would be many years before they would be fully implemented.

The commission is a private, non-profit study group formed in 1962 by the National Health

Council and the American Public Health Association. Thirty-two members from medicine, business, labor and other fields make up the commission, which is headed by Marion B. Folsom, former Secretary of Health, Education and Labor.

"To achieve an integrated program which will provide comprehensive personal health services of high quality to all in each community, it will be necessary to weld together many separate programs into a community-wide program," the commission said. "Accomplishment of this goal would preclude new construction or the expansion of hospitals for these separate groups, and would require total integration of such facilities into the total community services. Financing . . . will continue to come from a variety of resources."

* * *

The National Academy of Sciences-National Research Council will undertake for the Food and Drug Administration a new evaluation of the efficacy of about 4,000 prescription drugs, starting this summer.

"The determination of the efficacy of new drugs marketed from 1938 to 1962 is called for under the Kefauver-Harris Amendments of 1962," Dr. James L. Goddard, FDA Commissioner said.

"I am grateful that the National Academy, with its capability of calling upon the talents of the nation's most distinguished scientists, is willing to accept this important public responsibility."

The review will be the most extensive efficacy study of drugs ever undertaken, Goddard said. Results of the study will guide the FDA in its final determination of the effectiveness of the drugs.

C. Joseph Stetler, president of the Pharmaceutical Manufacturers Association, commended the selection of the academy for the task.

"PMA is delighted that this method was selected," Stetler said. "Based on past activities, we are certain that the academy will work with both industry and medical practitioners in forming guidelines for determining the effectiveness of these products."

"Although this undertaking will be of extraordinary magnitude for an Academy-Research Council advisory study, it is also one of extraordinary importance to the medical profession and the nation," Dr. Frederick Seitz, NAS-NRC president said. "It is essential that the study have the strongest possible professional base; we shall, therefore, depend on the cooperation, not only

of many individual medical scientists, but also of the major professional societies interested in therapeutic drugs."

Since October, 1962, manufacturers have been required under the Kefauver-Harris Amendments to submit substantial evidence to support therapeutic claims before receiving FDA approval to market a new drug. The NAS-NRC review will put to the efficacy test new drugs marketed under the provisions of 1938 legislation, which required only a showing that drugs were safe for their intended use. The 1938 Act excluded from FDA approval procedures drugs already on the market, as well as drugs introduced after that date that were generally recognized as safe by qualified experts.

Dr. James Z. Appel, president of the American Medical Association, sharply criticized the FDA's enforcement of the 1962 Drug Act Amendments in a speech at Chicago. He listed 10 counts on "the minus side" of the FDA record on administering the amendments.

"The manner in which the Agency suddenly seizes drugs and accompanies this activity with alarming language tends to create an atmosphere of hysteria," Appel said. "It also is creating a restrictive and undesirable medico-legal climate that will inevitably exert a deleterious influence on the effective use of drugs by the physician. This trend is causing the medical profession much concern . . .

"Nagging us is the increasing suspicion that regulatory decision may be dictated more by the technicalities of regulatory language than by appeal to competent medical and scientific analysis and judgment. The tame submission of the pharmaceutical industry to any and every regulatory suggestion or directive, regardless of the medical and scientific facts involved, is unsettling . . .

"At the time of the passage of the 1962 amendments and subsequent regulations, we were concerned about the advisability of non-medically oriented lay FDA inspectors being permitted to inspect and copy the case records of physicians engaged in clinical investigation. This could only result in a non-professional acting as a judge in a professional area and also invading the physician-patient relationship. We have been apprised of incidents where such inspection has extended even to the personal file of an investigating physician. The future implementing of this aspect of drug investigation cannot help but con-

cern us."

Appel also listed some "plus factors" for the FDA, including the fact that a physician now is FDA Commissioner.

* * *

The AMA has reiterated its support of a federal program to aid in modernization of hospitals.

Dr. F. J. L. Blasingame, executive vice president of the AMA, wrote the Senate Health Subcommittee that the AMA supports that provision of an Administration bill (S. 3009) that would provide grants and loans for modernization of hospitals and other medical facilities, through direct federal loans, government guarantee of private loans, and also federal grants with respect to loans, amortizing principal and interest payments thereon up to 40% of the cost of a project.

"While the present Hill-Burton program does provide for modernization of hospital facilities with priority 'in the case of projects for modernization of facilities, to facilities serving densely populated areas,' we nevertheless feel, because of the great need which exists, that the special program contemplated under S. 3009 for modernization of facilities in metropolitan areas is indeed warranted," Blasingame said.

The AMA opposed some other provisions of the legislation. It was recommended that aid for diagnostic or treatment centers be eliminated and that federal money be available to only those public health centers operated by a public health department.

* * *

Election of new officers was conducted by ballot at the Association of Tumor Clinic Staff Members meeting at the Association's Cancer Seminar held May 1, Fountain Room, Arlington Hotel, Hot Springs.

"Recent Advances in the Management of Malignant Tumors of Childhood" was the Seminar theme.

THINGS



TO

COME

TENNESSEE VALLEY MEDICAL ASSEMBLY, Tivoli Theater, Chattanooga, Tennessee,

September 26-27, 1966. William Robert Fowler, M.D., Chairman, 109 Medical Arts Building, Chattanooga, Tennessee.



OBITUARY

Dr. Bronelle Thomas Kolb

Dr. B. T. Kolb, aged 51, of Little Rock died May 1st. He was a native of McClain County, Oklahoma, and had practiced in Little Rock since 1942. He was the son of Mrs. Carrie DuVall Kolb of Blanchard, Oklahoma, and the late Dr. I. N. Kolb. He attended public school in Blanchard, the University of Oklahoma and was graduated from the University of Arkansas School of Medicine. He was a member of the First Baptist Church in Blanchard, Magnolia Masonic Lodge 60, Arkansas Consistory, the American College of Surgeons, the American Medical Association, the Arkansas Medical Society and the Pulaski County Medical Society. He had been active in work with the Arkansas Rehabilitation Service. Survivors include his widow, Dr. Agnes C. Kolb, and two daughters.

Dr. Walter Hugh Bruce

Dr. W. H. Bruce of Pine Bluff died on May 1st at the age of 85 after a long illness. A native of Brownsville, Tennessee, Dr. Bruce was a son of the late Joel and Sally Peebles Buck Bruce. He attended schools in Friendship and Dyer, Tennessee. He attended the University of Tennessee Medical School at Nashville for two years and received a Doctor of Medicine Degree from the University of Arkansas in 1907. He was graduated from the Chicago Eye, Nose and Throat College in 1927. Dr. Bruce practiced medicine at Morrilton for twelve years. During this period he attended the Rockefeller Institute for public health work in Mississippi. He was a major in the Medical Department of the 153d Arkansas Infantry during World War I and served overseas. He was promoted to Lieutenant Colonel and became assistant division surgeon of the First Infantry Division. In 1927 Dr. Bruce began public

health work at Morrilton. He moved to Pine Bluff in 1933 and was county and city health officer for twenty-six years. When he retired in 1959, he was presented a "Declaration of Appreciation" signed by more than 1,000 residents of Jefferson County. Dr. Bruce was a member of Quapaw Masonic Lodge 730, the Arkansas Consistory and Sahara Shrine Temple. He belonged to American

Legion Hearin-Connolly Post 32 and the Last Man's Club and was one of three honorary members of the Pine Bluff Rotary Club. He also was a member of the Jefferson County Medical Society, the Arkansas Medical Society, the American Medical Association and the First Methodist Church. Surviving are his widow, three sons and two daughters.



PERSONAL AND NEWS ITEMS

Dr. Allen Is Director

Dr. Stewart Allen, Little Rock gynecologist, has been named director of the recently approved Family Planning Clinic of Pulaski County.

Dr. Lawson Is Speaker

Dr. Wilbur G. Lawson of Little Rock was the guest speaker at a meeting of the Siloam Springs PTA in April. His topic was "Mental Health in Home and School."

Dr. Cross in Formosa

Dr. John H. Cross, an associate professor of microbiology at the University of Arkansas Medical Center has gone to Formosa to join a Navy research unit studying Asian parasitic diseases.

Hypnosis Seminar Held

New advances in medical hypnosis was the subject of a University of Arkansas Medical Center post-graduate session held in April at Little Rock. Dr. T. E. A. von Dedenroth, a Tucson, Arizona internist and nationally renowned medical hypnosis expert, conducted the seminar. According to Dr. Robert R. Matthews, co-ordinator of continuing education in psychiatry at the Medical Center, the program was designed for practicing physicians who want to further their understanding of medical hypnosis and learn of its practical application.

Doctors Participate in Convention

Dr. C. E. Tommey, Dr. Berry L. Moore, and Dr. K. R. Duzan, all of El Dorado; Dr. Joseph Norton of Little Rock, and Mr. Paul Schaefer, Executive Vice President of the Arkansas Medical Society, participated in programs at the twelfth annual convention of the Arkansas State Medical Assistants Society held in El Dorado on April 16-17.

Physicians Meet With Technologists

Arkansas physicians taking part in the Arkansas State Medical Technologists annual meeting held at Jonesboro in April were: Dr. Glen F. Baker, chief of the Department of Pathology at St. Bernard's Hospital, who was in charge of arrangements; Dr. Charles E. Kemp of Jonesboro who spoke on "Neo-Natal Jaundice"; Dr. Owen H. Clopton, Jr., of Jonesboro who spoke on "Iron Deficiency Anemia"; Dr. William Harville of Little Rock who spoke on "Clinical Pathologic Correlation of Parathyroid Adenomas".

Fount Richardson Health Center Dedicated

The Doctor Fount Richardson Student Health Center of the University of Arkansas dedication ceremony was held May 22, 1966, at the University.

Doctors Escape Injury

Dr. and Mrs. Edwin L. Dunaway and Dr. and Mrs. Charles A. Archer, Jr., of Conway escaped injury May 1st when the car they occupied was forced from Interstate Highway 40 near Morgan. They were enroute to the Arkansas Medical Society convention in Hot Springs.

Dr. Ackerman Is Speaker

Dr. George Ackerman, associate professor of medicine at the University of Arkansas Medical Center discussed the artificial kidney and kidney transplants during the Little Rock Park Hill Lions Club dinner in May.

Physicians Speak at Convention

The third annual convention of the Arkansas Association for Children with Learning Difficulties was held May 7th at the University of Arkansas Medical Center. Arkansas physicians serving as speakers were: Dr. Sam D. Clements, Dr. Edwin

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Dr. Norton Awarded

Dr. Joseph A. Norton of Little Rock, president-elect of the Arkansas Medical Society, has been named as the recipient of the third annual Liberty Bell Award of the Arkansas Bar Association, which is given annually to a layman for outstanding service for the American system of freedom.

Children's Colony in Study

Residents of the Arkansas Children's Colony at Conway have participated in a study which could mean the end of German measles, or rubella, as a cause of birth defects and mental retardation. The study was made of the effect of a new vaccine against rubella, developed by Drs. Harry M. Meyer, Jr., a former resident of Conway, and Paul D. Parkman. Dr. Theodore Panos, professor and chairman of the Department of Pediatrics at the Medical Center initiated Arkansas' role in the study. Dr. Ann Poindexter, Colony pediatrician, and Dr. Neil C. Stone, Colony medical director, conducted the study at the Colony.

Dr. Scurlock is Diplomate

Doctor William R. Scurlock of El Dorado has successfully completed both phases of the examination and has been appointed a diplomate of the American Board of Surgery.

PROCEEDINGS OF SOCIETIES

Independence

The Registered Professional Nurses of the Newport-Batesville district met with the Independence County Medical Society at Batesville in April. Dr. William Hudson of Harrison was the guest speaker who talked on the treatment of tuberculosis. Dr. Paul Gray of Batesville introduced Dr. Hudson.



BOOK REVIEWS

MEDICAL SERVICE IN THE MEDITERRANEAN AND MINOR THEATERS by Charles M. Wiltse, pp. 664, illustrated, published in the group of Medical Department volumes in the subseries *THE TECHNICAL SERVICES*, Office of the Chief of Military History, Department of the Army, Washington, D.C., 1965.

This is one of a series of historic books on the medical services of the U.S. Army in World War II. This particu-

lar volume on Mediterranean and Minor Theaters describes some of the problems entailed in caring for both medical and surgical casualties in this area. It will be of considerable interest to medical officers who participated in these campaigns and will be, of course, of great interest to medical historians. AK

PREIMPLANTATION STAGES OF PREGNANCY, Ciba Foundation Symposium, edited by G. E. W. Wolstenholme, O.B.E., M.A., F.R.C.P., F.I. Biol. and Maeve O'Connor, B.A., illustrated, pp. 430, published by Little, Brown and Company, Boston, 1965.

Of considerable value to the obstetrician is this Ciba Symposium entitled *PREIMPLANTATION STAGES OF PREGNANCY*. This book contains some interesting photomicrographs and there is a chapter with excellent pictures of the fine structures of the blastocyst, as revealed using the electron microscope. This book, aside from being of interest to obstetricians, is, of course, of paramount importance to students in the field of embryology, to whom it is highly recommended. AK



NEW MEMBERS

DR. STANLEY SIMON SCHWARTZ is a new member of White County Medical Society. He is a native of Clarksdale, Mississippi, and he received his preliminary education from the University of Georgia and from Harding College, Searcy, Arkansas. He was graduated from the University of Tennessee School of Medicine in 1962 and he interned at U. S. Army Tripler General Hospital, Oahu, Hawaii. He served in the U. S. Army from 1962 until 1965. Dr. Schwartz is a general practitioner and his office address is 910 East Race, Searcy, Arkansas.

Craighead-Poinsett County Medical Society announces that DR. FRANCIS MARION WILSON is a new member. He was born at Black Oak, Arkansas, and he received his pre-med from Arkansas State College. In 1953 he was graduated from the University of Arkansas School of Medicine and he interned at Hillcrest Medical Center, Tulsa, Oklahoma. He has practiced at Cottonplant, Arkansas; Elizabethton, Tennessee, and Madisonville, Kentucky. Dr. Wilson's specialty is general surgery and his office address is 806 Jeter Drive in Jonesboro, Arkansas.

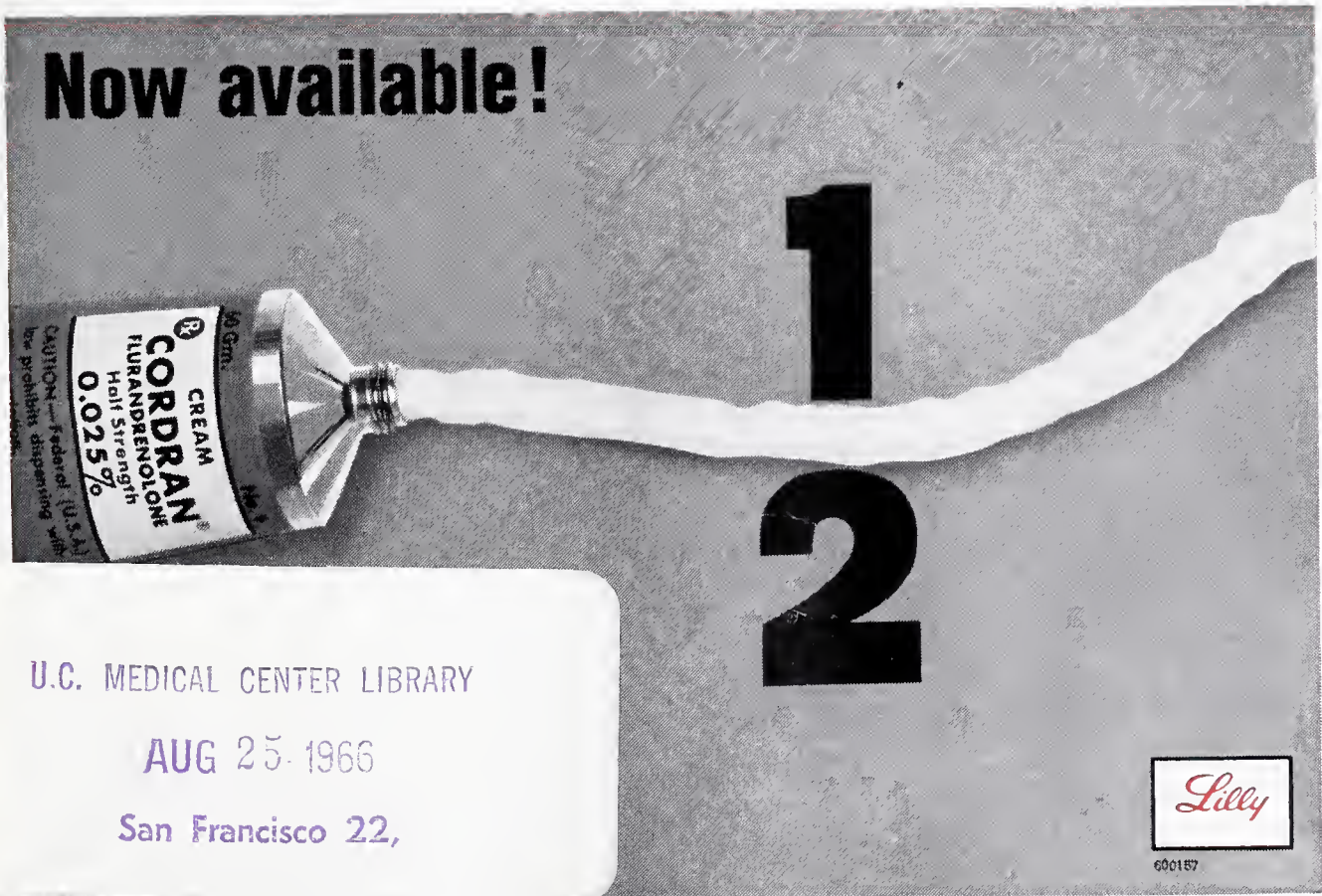
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THE JOURNAL OF THE Arkansas MEDICAL SOCIETY

Vol. 63 No. 3

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The advertisement features a tube of Cordran cream on the left, with a white stream of cream flowing from its nozzle towards the right. The stream passes between two large, bold black numbers, '1' and '2', which are stacked vertically. The background is a textured grey. The tube's label includes the text: 'CORDRAN CREAM', 'FLURANDRENOLONE', 'Half Strength', '0.025%', and 'CAUTION - Federal (U.S.A.) law prohibits dispensing without prescription'. In the bottom right corner, there is a small red 'Lilly' logo and the number '000157'.

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COLLES' FRACTURES

F. Walter Carruthers, M.D., F.A.C.S.*

The purpose of this paper will be a very modest one. It will be designed as a discussion of problems encountered in the handling of this type of injury, and will not convey to you how to treat Colles' fractures, but to emphasize some of the pitfalls for you to avoid in handling of this particular fracture, and to emphasize that it is not by any means a simple one.

I have often said that there are no simple fractures, in my opinion not only simple in order to differentiate the usual type of Colles' fracture from one that may be a comminuted or a compound injury. One of my colleagues has referred to this as either a complex fracture or a compound one, because it is so often very complicated. One must be able, therefore, to see more than the fracture itself—soft tissue, vascular nerve injuries may be the underlined factor needing much attention.

Besides fractures of the fingers, ribs and clavicle, this extension compression fracture of the lower end of the radius many times produces what is commonly called a Colles' fracture, and is the most often encountered fracture of our skeletal structures because of its frequency and impairment of function of the hand, the wrist and the forearm. It behooves us to reduce these injuries in the best manner and obtain the best possible results of usefulness and function without impairment of normal use.

These fractures are of great importance economically and, therefore, every physician and surgeon who is called upon to treat them must be able to do so.

These fractures are rarely seen in children, but oh, so common in the adult. In children one will see either two types of injuries, one involving both bones of the forearm, usually a few centimeters above the wrist joint, involving both the radius and ulna. On the other hand the x-ray may reveal a slipped radial epiphysis which is obviously not a fracture, but does require accurate

replacement. If such replacement is not completely and wholly obtained, one may experience deformity as illustrated in figure No. 1, showing



FIGURE 1

From the University Medical Center showing angulation.

the angulation deformity and the radial shortening with radial deviation of the hand, but here one may follow the teachings of Dr. Walter Blount and see restoration of normal lengths and good functionable result in spite of early residual deformity with shortening as reflected by figure No. 2 illustration.

One's judgment and experience must play a vital part in your evaluation of the existing pathology.

With a history of a fall on the out-stretched hand one must be carefully examined and evaluated, and especially, with the presence of swelling,

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FIGURE 2

Shows the improvement in the angulation by growth, 2 months later.

deformity, pain and discomfort present, and the x-ray film must be carefully evaluated and if for instance, a comparatively mild impacted fracture

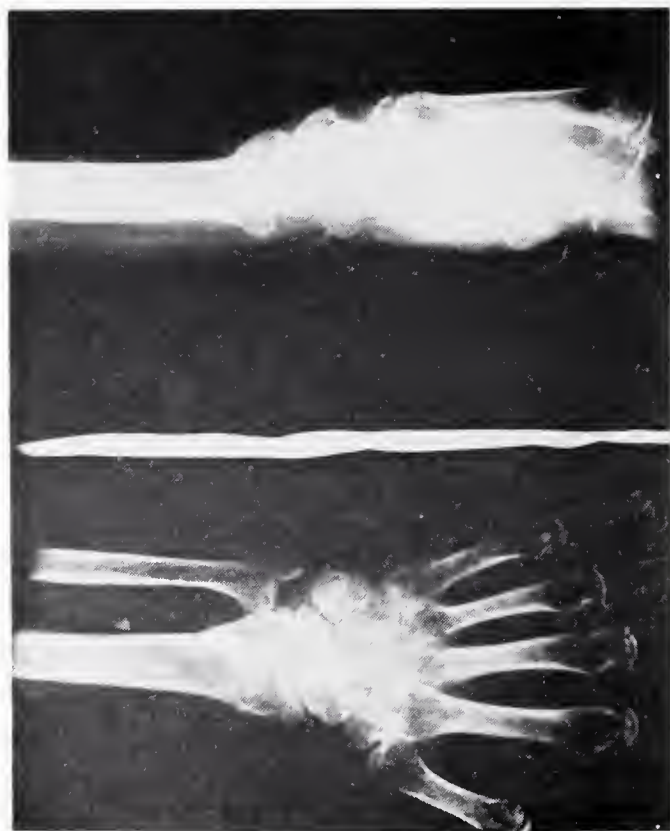


FIGURE 3

Shows residual deformity to unreduced impacted Colles' fracture.



FIGURE 4

Shows severe complicated Colles' fracture.

is shown involving the radius in an adult has occurred, the attending physician is so often apt to be the kind to leave it alone. By so doing residual deformity as reflected in figure No. 3, Mrs. W. age 55, sustained such a fall and produced this type of fracture, which went unreduced, leaving her obviously with residual dorsal angulation and the common silverfork deformity causing restricted motion, an impairment of function in all directions, palmar flexion, dorsal flexion, loss of inversion and eversion of the hand at the wrist. This lady has to carry with her the rest of her life unsightly residual deformity, and so often have her friends asked her "Who set your arm"? This is an uncompromising condition that should never have been allowed to develop.

As I have said in the beginning the discussion in this paper is not designed to tell you how to treat this or any other fractures of similar nature, for instance, the commonly called Pott's fracture of the ankle, or the severe Monteggia type of fracture of the elbow.

If your training has not been adequate and sufficient enough to permit you to apply the principles necessary in the reduction of fractures wherever they may exist, then by all means go to some medical training center and learn how to treat fractures, and after doing so learn most of



FIGURES 5 AND 6

Demonstrates the necessity for internal type of fixation-reduction. Films from Dr. Austin Grimes Clinic.



all how to evaluate the given fracture and whether you are capable of handling it or whether in your opinion it should be referred to a specialist or medical center where such a type of fracture can be successfully handled. Fractures are too indi-

vidual and a surgeon must have at his command good basic surgical principles, along with a mechanical and common sense ability in order to combat the often difficult unseen, unexpected problems that may arise in any case.

The surgeon with background of good training, good mechanical sense of familiarity, the proper principles of reduction of any given fracture, associated with his good mechanical training, should be competent to undertake problems at hand with the reduction, after care necessary in any given case. Colles' fractures often turn out to be very complicated with the fragments severely comminuted, and will necessarily require internal fixation as illustrated in the film demonstration shown in figures No. 4, No. 5, and No. 6. As in this case treated by one of my good colleagues who has permitted me to use these illustrations, this is a type of fracture that requires good judgment and ingenuity to be able to successfully administer the care that this fracture necessitates to a full and complete termination. At this point, I think that I should emphasize to you that if you do not have full confidence in your ability to treat this type of fracture as it should be, then do not hesitate to refer to a specialist or to some nearby medical center where adequate facilities are available. Never be afraid to ask for consultation, never for one moment should you think that you would be little yourself in the eyes of your patient to admit that you need consultation and advice. It never hurt anyone and it certainly will not hurt you. Even with my long years of experience I have never hesitated to seek advice either by consultation or by having assistance in the surgical handling of the given case at hand. I am not unmindful of the fact that a general surgeon or practitioner who is not accustomed to doing bone surgery should be warned against attempting to operate on fractures without a thorough knowledge of the procedure that he will be endeavoring to undertake. I feel however, with a skillful technique it will permit a trained operator to apply the necessary technique to accomplish the required reduction whether it be an opened or a closed procedure. Ask yourself the question each time a case is presented to you, "am I capable of treating this particular case"? Fractures not properly reduced may end up in a pitiful existing deformity that could have been avoided by proper handling.

Even in the hands of the best, pit-falls will



FIGURE 7
Shows a typical Colles' fracture.

occur, one of them can be very beautifully illustrated in figure No. 7; it shows a typical Colles' fracture that was considered a satisfactory reduction, thought to be properly emobilized, but a

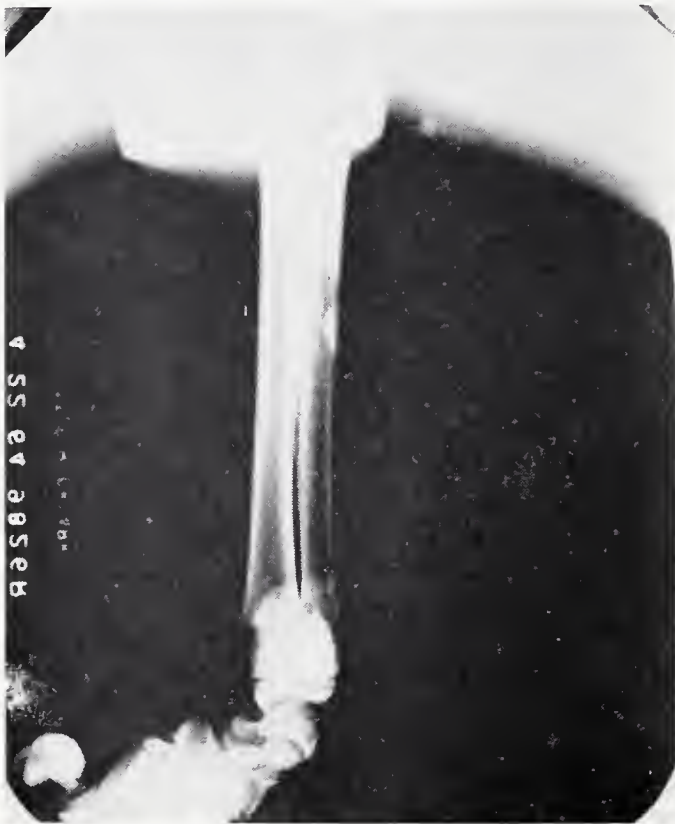


FIGURE 8
Shows a satisfactory reduction.

check-up film was not made soon enough after the reduction, four weeks had lapsed and the check-up reveals recurrence of the original fracture, with union well advanced. Attempt was made in this case to do a simple osteotomy at the fracture site and reduce it, expecting it to remain in place without some form of internal fixation. Deformity recurred and then a major operative procedure became necessary. Not only an osteotomy had to be performed at the original fracture site, but an oblique osteotomy had to be done on the ulna, then the two bones held into position by the insertion of inter-medullary pins as illustrated in figures No. 8, No. 9 and No. 10. The



FIGURE 9
Shows a reoccurrence of the angulation deformity in the radius.

operative procedure 15 months after the original operation, the removal of the inter-medullary pins and a final check-up film figure No. 11 shows an excellent result. Obviously this captioned case does have some residual loss in his ability to fully extend his hand at the wrist, but with 75% ability to supinate his hand, and with complete ability to pronate it. In spite of this and taking into consideration the over-all clinical picture he has excellent results, maybe I should say good.



FIGURE 10

Shows inter medullary fixation-reduction.



FIGURE 11

Shows end-results after the removal of fixation pins.

Summary:

1. Colles' fractures are one of the most common of all our skeletal injuries.
2. Don't be afraid to ask for consultation.
3. Refer your patient if in your judgment you do not feel confident to handle it.
4. Consultation never hurt anybody.
5. I hope that you will remember that the type of

injuries mentioned in this discussion, serious as they sometimes are can in most instances be properly reduced and completely restored by the application of good sound mechanical reasoning well applied, and will often relieve the apprehension felt by the surgeon as well as the patient.



Simplified Photopatch Testing

S. Epstein (2705 Marshall Ct, Madison, Wis) *Arch Derm* 93:216 (Feb) 1966

A simplified technique and an inexpensive apparatus which will permit the dermatologist to perform photopatch tests as a simple office procedure are described. The apparatus consists of an inexpensive wire basket-like attachment to a hot mercury arc lamp (Burdick, Hanovia) which cradles a glass filter to eliminate the undesirable short-wave sunburn radiation. The time recommended for exposure for the photopatch test is 20

minimal erythematous doses (MED) equivalent. A MED equivalent for hot mercury arc lamp is defined as that amount of long-wave ultra-violet light contained in an MED after it has passed through a filter which eliminates the radiation below 3,200 Å. The determination of the MED equivalent for a given lamp is simple because it is based on the average MED for that particular source of light and does not require the determination of the individual MED of the patient to be phototested.

ACUTE AND CHRONIC INTESTINAL OBSTRUCTION: The Development of Current Concepts of Management*

Eugene M. Bricker, M.D.**

Mr. President, Ladies and Gentlemen:

In keeping with the spirit of this occasion at which we are honoring the memory of Dr. Leonidas Kirby, a pioneer physician bridging with his lifetime that eventful period between the termination of the nineteenth and the beginning of the twentieth centuries, I have drawn heavily on the historical background of my subject many events of which occurred in a period contemporary with that of Dr. Kirby's professional life. One could go back much farther than this, of course, but it is doubtful that there was much difference in the approach to intestinal obstruction two hundred years ago as compared to that of one hundred years ago. The progress has been made in the past century.

Prior to the year 1800, the patient with distended abdomen, absent bowel movements, and vomiting, was treated by purgatives, enemas (usually called clysters), and various fomentations applied to the abdomen. Patients with only partial obstruction or with paralytic ileus had a chance of surviving in spite of these desperate measures. However, the patient with complete obstruction was doomed. Perhaps the first "surgical" attempt at decompression was that stolen from the veterinarians of the day in the form of percutaneous needle punctures. It is possible also that the difference in significance between small and large bowel obstruction became evident as a result of these efforts in that punctures of the retroperitoneal portion of the colon proximal to colon obstruction presented the only favorable opportunity for this procedure. The possibility of proximal decompression by other means than needling was the next logical consideration and, according to Welch²⁷ to whom I am indebted for some of my historical information, this was suggested by Littre in 1713, but not accomplished until 1776 when Pillore successfully decompressed an ob-

structed colon by cecostomy.

For several decades the surgical approach to intestinal obstruction was confined to the performance of various types of colostomies. One wonders whether the horror with which so many patients now contemplate the possibility of a colostomy is not partially the result of this era which extended well into the 20th century during which the procedure earned an undeserved reputation through its association with patients dying of cancer.

Both small and large bowel surgery were dependent upon two developments before real progress was to be expected. Anesthesia was necessary before any type of definitive operation could be expected to be successfully accomplished, and a method of intestinal suture that would provide primary healing without leakage had to evolve. Prior to these two advances bowel surgery was confined to the emergencies of the battlefield and to those emergencies presented by intractable intestinal obstruction. The surgical means available were limited to rather primitive attempts at suturing or to the provision of a fistula for decompression of obstruction. Most attempts at closing intestinal wounds by suture ended in fistula formation. In 1846, Morton's ether anesthetic for Dr. John Collen Warren of the Massachusetts General Hospital was proclaimed as "no humbug" and the era of surgical anesthesia was initiated. For the preceding fifty years the problem of intestinal suture had been one of intensive research initiated largely by the studies of Travers²⁴ in 1813 and continued by a host of surgeons which include through the years the names of Lembert, Connell, Cushing and Halsted.

The culmination of this interest and effort was an understanding of the requirements of successful bowel suture and the development of techniques that met these requirements, essentially the inversion of mucosa and the approximation of serosa. Thus at the midpoint of the 19th century surgeons, for the first time, had the essential

*The Leonidas Kirby Memorial Lecture delivered before the Boone County Medical Society at Harrison, Arkansas on 15 October, 1965.

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means of attacking intestinal obstruction in a definitive manner.

There are several reasons for obstructions of the colon having been the most popular target of the early surgeons. Perhaps of greatest importance is the fact that colonic obstruction was usually not accompanied by the profound physiological disturbances characteristic of small intestinal obstruction. The patients were not as sick. Mikulicz¹⁵ expressed this concept quite well in 1903:

"It is certainly known that a tumor, when it produces clear functional disturbances in the intestine, does not proceed in the same way, according to whether it is located in the small intestine, in the area of the cecum or in the deeper sections of the colon. In general, one can say that the higher the intestinal carcinoma is located the more pregnant the symptoms are and the more stormy the course of the disturbances."

In addition, obstruction of the colon was probably more frequently seen. Abdominal surgery with subsequent adhesions as a factor in small bowel obstruction was less prevalent than today, and judging from the literature of the time, obstruction of the colon from cancer was fairly common. In any event, a great deal of surgical interest was directed at the colon in exploiting the availability of anesthesia and the techniques of surgical suture. It very early became evident that the open colon was a potent source of infection and was the cause of high failure rate of resection and primary anastomosis. On the other hand, patients tolerated colonic fistulae well with the result that surgeons, Block, Paul, Mikulicz, and others, conceived of exteriorization operations in multiple stages and for the first time brought the mortality rate down to an acceptable figure. In fact, the principles developed by these surgeons serve us today in the form of proximal decompression of colonic obstruction and staged operations for those patients with complete obstruction who cannot be prepared for resection and primary anastomosis. It is interesting to sample the surgical thought of this evolutionary period. Here is Paul²⁰ in 1895 introducing the subject of staged colonic resections by exteriorization:

"In placing the following seven cases of colectomy on record, I am aware that my contribution may have the reverse effect to that which I would wish, yet it is not the less a matter of duty to relate them. The mortality

has been from various causes unsatisfactory. The first three patients died outright from the operation, one of the others died from a second operation undertaken to improve her condition, and the sum of the existence of the remaining three survivors was nothing to boast of. The reader is therefore naturally inclined to accept this as further evidence against an operation, the expediency of which he probably already regards as problematical. The statistician, too, if he adds these cases en masse to his statistics, helps to show what a fatal and unsuccessful operation colectomy is, quite regardless of the fact that no true deduction can be made from a pile of figures in which tried or untried operations, and experience or inexperience on the part of the operator have no significance. As a matter of fact, these seven cases represent the education of an individual surgeon and the resulting mortality has more reference to the impossibility of attaining sound judgment and technical skill without practical experience than it has to be the chances of success or failure of colectomy under proper conditions."

And here is Mikulicz¹⁵ in 1903 on the same subject:

"As far as I can tell from what is being written, single-operation resection with primary suture of the intestine affected by carcinoma is generally the rule almost everywhere today. The results of this operation, particularly for carcinoma in the region of the colon have certainly been quite unsatisfactory up to now, regardless of whether the intestinal union was made by the old method of a circular intestinal suture or by lateral implantation or imposition or even with a button for intestinal anastomosis. I need only give a few statistics. Of Koerte's nineteen radically operated cases, seven died (three of them, however, underwent ileus operations); of Czerny's eighteen cases, nine died; of von Bramann's fourteen, six died; of von Kroenlein's twelve, six died."

The disastrous results of the first attempts of bowel resection and primary anastomosis, in addition to diverting attention to staged operations on the colon, was also the cause of intensified and ingenious efforts to make possible anastomosis of the intestine without contamination and with-

out the element of human failure incident to the need for skillfully and meticulously placed sutures. In 1892, Dr. J. B. Murphy¹⁸ of Chicago gave his own evaluation of the then current situation as follows:

"Mr. President and Gentlemen: Intestinal surgery occupies a very advanced place in the category of great surgical questions of the present day. Medical literature teems with reports of successful cases operated on, and not a few of the disasters are also placed on record. All over the world investigators are trying to solve the many perplexing problems that accident and disease of the gastro-intestinal tract present to them for consideration. That this subject has had such exhaustive consideration during the last decade, and that it is still a theme for spirited controversy and discussion, carried with it the implication that many vital points are yet unsettled and need further investigation, experimental and clinical. The marvelous ingenuity displayed in plans devised for intestinal approximation and anastomosis is worthy of the greatest success, and that success would have been realized were it not that some of the following complications occurred: "the suture was imperfectly applied; the bowel sloughed through at line of suture; the induced invagination increased after the operation until complete obstruction was produced; openings in the bone plates and disks were not in apposition; the ends of the bone plates caused pressure, atrophy, and perforation; the catgut sutures were too rapidly absorbed; and lastly, and with appalling frequency, prolonged operation produced fatal "shock" and many other well-known obstacles, not necessary to mention here intervened."

Murphy proceeded to describe the mechanical, non-suture device that became known as the "Murphy button" and which for a brief time held the spotlight as surgeons hopefully tested its merits. The "button" was in actuality two buttons, male and female, which when properly applied and locked together would hold two ends of intestine firmly together without sutures. The button would necrose the included bowel wall and slough into the lumen to be extruded. That this device was not totally successful and the final answer is suggested by the fact that in 1908 Parker

and Kerr¹⁹ were still experimenting with suture techniques aimed at asepsis during anastomosis. In introducing their basting stitches they allude to contemporary efforts with clamps that were enjoying some degree of success:

"The fact that from five to ten new methods for intestinal anastomosis continue to be described each year is itself strong evidence that the perfect way has not yet been found. The very multiplicity of methods, therefore, furnished as excuse for suggesting still another, but at the same time it increases in proportion the obligation to make good. Only the best of reasons can justify the addition of one more to the long list, especially since in recent years the technic of intestinal anastomosis, long in a very chaotic condition, seems to be approaching the uniformity and precision of an established method. As Monroe has said, "The simplicity, cleanliness, rapidity and safety of the clamp and suture operation are strong arguments at the present time against any substitutes."

The basting stitch they described closed the bowel lumen temporarily and was removed after the anastomosis was complete. This technique lost out to the clamp and suture method as new and better intestinal clamps were developed. Among the clamps for so-called "closed anastomoses" was that developed by Rankin,²¹ a clamp with three blades that would hold two segments of bowel in apposition as the sutures were being placed. The Rankin clamp was used also to secure the two ends of colon after an exteriorization procedure or after an "obstruction resection" to use Rankin's terminology. It is interesting that, though better clamps are available now, most surgeons find very little occasion to use them, relying instead on carefully done "open" anastomosis and influenced by better methods of preparing the bowel for surgery and better understanding of the contraindications to primary anastomosis by any means.

These historical developments are of great interest but thus far they have been concerned with the mechanical and technical problems presented by intestinal obstruction, and obstruction of the colon chiefly. Little attention had been paid to altered physiology incident to obstruction, with the exception that the effects of infection resulting from contamination at the time of anastomosis were well recognized. The treatment of colonic

obstruction proceeded rapidly and separately from that of small intestinal obstruction for the reasons already enumerated. i.e., (1) the suitability of the colon for decompression and staged operations, and, (2) the greater virulence of obstruction of the small intestine in producing a physiological insult for which there was no simple solution such as proximal decompression with an acceptable fecal fistula. However, for years, proximal decompression by what was hoped to be a temporary jejunal fistula was about all the surgeons had to offer the intractably obstructed small intestine. Why this makeshift procedure remained in vogue for so long is difficult to understand today. According to Welch²⁷, jejunostomy was introduced by Fuhr and Wesener⁸ in 1886. In 1903, Lund¹⁴ recommended enterostomy in desperate cases of paralytic ileus or obstruction due to inflammatory disease. In 1918, Victor Bonney³ of England advocated jejunostomy in the *British Medical Journal* as follows:

"By making an opening into the jejunum in a case of faecal or intestinal vomiting the source of the vomit is directly tapped and free drainage of the toxic material is established.

"No patient should be allowed to die with faecal vomiting if it is possible to perform this operation. Its effect in my cases has been remarkable; in all of them there has been immediate cessation of the vomiting, and all the patients have recovered.

"It is true that after jejunostomy a second operation to close the opening has to be faced, but this is not such a serious undertaking as might at first be thought."

Unfortunately, jejunostomy decompression did not fulfill the hopes of its early exponents. This is quite evident from the statement of Dr. James Rives in his discussion of a paper on operative tube decompression by Baker²:

"I have an inbred horror of enterostomies based upon my early experience with them. They fix a point on the small bowel to the anterior abdominal wall about which volvulus is prone to occur. I have seen persistent fistulas with erosion of the abdominal wall and on a few occasions prolapse of the bowel through the opening."

The complications described by Dr. Rives were not an isolated experience. In fact, the failure of enterostomy led directly to the development of tube techniques for decompressions that were

initiated by Levin¹³ in 1921 and extended and popularized by Wangensteen²⁵ in 1933. This was a major advance which provided a non-operative means of controlling abdominal distention in both the pre and post operative period and which had a marked effect on the mortality rate of intestinal obstruction. Today, the nasogastric tube is an indispensable part of our surgical armamentarium.

Paralleling the development of tube decompression in time and importance was an appreciation of the role played by body fluid and electrolyte in the pathophysiology of obstruction and the means of correcting these derangements. Starting in 1912 when subcutaneous saline was found beneficial for dogs with experimental obstruction by Hartwell and Hoguet¹⁰, the science of correction of fluid and electrolyte imbalances has progressed to the present time through contributions from a host of investigators and laboratories.

One could hardly pick a subject in medicine or surgery in which the historical development came from a greater number of converging sources than that of intestinal obstruction. The accumulated knowledge encompasses the physiology of bowel secretion and motility, the mechanics of decompression and anastomosis, the biochemistry and physics of body fluids, electrolytes and proteins, and the effects of bowel distention and stasis on the circulation and bacteriology of the bowel lumen and wall. To develop all these aspects of the problem is beyond the scope of this presentation and is more appropriately the role of a monograph, such as the excellent ones by Wangensteen²⁶ and by Welch²⁷. For purposes of practicality let us now focus our attention on two areas in which current concepts have a very important bearing on the present day management of the patient with intestinal obstruction, namely: (1) intestinal decompression, and (2) "toxic" absorption. These two subjects are inter-related in that uncontrolled intestinal distention can eventually lead to "toxic" absorption. Since colonic obstruction lends itself to satisfactory operative decompression, the following discussion will pertain specifically to the problem presented by obstruction of the small intestine.

INTESTINAL DECOMPRESSION

The deleterious effects of progressive distention of the intestine were recognized long before they were understood. Understanding evolved through

an appreciation of the accumulative effect of swallowed air, the volume of normal gastro-intestinal secretion, and the effect of distention on the circulation of the bowel wall and on the absorptive and secretory functions of the intestinal mucosa. Normally a volume of 7,000 to 8,000 cc. of fluid is secreted into the upper gastro-intestinal tract daily, from the stomach, liver, pancreas and intestine. The fluid is low in protein but rich in electrolytes and most of it is re-absorbed into the circulation through normal bowel mucosa. With obstruction, the intraluminal pressure rises, reabsorption slows or stops and the free passage of swallowed air and other gases is blocked. With continued distention, the venous circulation of the mucosa and bowel wall is embarrassed and transudation of protein rich fluid into the lumen of the bowel and from its serosal surface takes place. The sequestration of fluid and electrolyte can thus be tremendous and result in a profound effect on extracellular fluid and circulating blood volume. Vomiting is only partially effective in relieving the distention. This pathological process can proceed to shock and death from dehydration and hypovolemia alone, or in combination with sepsis from anoxia of the bowel wall, bacterial invasion, necrosis and perforation. The aim of treatment is to stop the progress of this disastrous chain of events and to correct the derangements that have resulted. Dehydration and hypovolemia are corrected by water, electrolytes, and colloid in appropriate concentrations and amounts. Appropriate amounts may be surprisingly high and adequacy will have to be determined by the clinical state and the usual parameters of which hourly urinary output and central venous pressure are of the greatest importance.

The replacement of enterostomy decompression by tube decompression via the esophagus, espoused and popularized by Wangenstein, has undoubtedly been one of the most important factors in mortality reduction in the past half century. It has played a significant role in the preparation of the patient for operation, in promoting the safety of the anesthetic and operative procedure and in controlling ileus in the post-operative period. The advent of the long intestinal tubes, introduced by Miller and Abbott¹⁶ in 1934 has added further possibilities of control and distention. Although the general concepts of tube decompression are well recognized, there are still several areas in which there is some uncer-

tainty. One of these areas, i.e., preoperative decompression, is a double edged sword in that its beneficial effect in lowering the mortality rate can be more than offset by the disasters that can result from its misuse. Also, in recent years it has appeared that techniques of tube decompression may have additional roles in the treatment of advanced acute obstruction and chronic recurrent obstruction. The following discussion of the various facets of tube decompression represents my own interpretation of current concepts.

1. *Pre-operative Decompression.* Pre-operative gastroduodenal decompression is an absolute requirement if the preoperative diagnosis, presumptive or otherwise, is intestinal obstruction. This is so whether or not the abdomen is distended, the patient has vomited, or the x-rays show distended bowel. Although it may be impossible totally to empty a stomach that is refilling from distended duodenum and jejunum, the attempt should be made. The danger from regurgitation and aspiration during induction of anesthesia are too great to justify omission of this precaution. Induction of anesthesia should be accomplished with this danger in mind and should usually include tracheal intubation under local anesthesia.

Tube decompression, whether gastric, duodenal or with a long intestinal tube, may result in the spontaneous relief of the obstruction through the decompression of a distended loop in the region of a kink that is producing or aggravating the obstruction. How long should the surgeon wait for this fortunate occurrence that can only be positively recognized through the unmistakable passage of flatus and feces per rectum plus a definite improvement in the bowel pattern by x-ray? This question covers the most critical area in the current management of intestinal obstruction since it has a direct relation to intestinal strangulation, perforation and sepsis. It is a common finding of all investigators that (a) the operative correction of simple mechanical obstruction in the first 24 hours produces the lowest mortality; (b) the surgery of strangulation obstruction produces twice the mortality as surgery for all obstructions combined. Therefore, it is currently felt that decompression should be used for a short period of time before surgical intervention, usually for only those few hours necessary for diagnostic work-up and evaluation, and correction of the fluid and electrolyte status. If the patient does not show evidence of spon-

taneous decompression through the rectum by this time the chance of recovery is much greater with early surgery. There are always exceptions to tax a surgeon's judgment, notable ones being associated diseases or conditions that in themselves will make operation extremely hazardous; and the problem presented by intra-abdominal sepsis producing an indefinable combination of mechanical obstruction and ileus. The surgeon must deal with such problems realizing that he must not miss a bowel strangulation, and realizing also that in cases of extreme doubt, the best chance for the patient resides in early rather than in late surgery.

The introduction of the long tubes led to some instances of surgery being delayed too long until the limitations of this method of decompression were realized. The insertion of the long tube by a manipulatable stilette as first described by Smith²³ is a technique that should probably be used more frequently than it is for those situations in which decompression is desperately needed without laparotomy, such as the critically ill patient with postoperative obstruction.

2. *Operative Decompression.* Decompression of the bowel at the operating table has long been considered desirable, and at some times an absolute necessity to effect abdominal closure. Various surgeons at the turn of the century commented upon it. Moynihan¹⁷ described his simple method of operative decompression in patients requiring resection and anastomosis. He simply let the distended proximal end drain into a pan at the operating table. Various techniques aimed at accomplishing decompression relatively aseptically have been described, that of Wangenstein's being one of the first and that of Baker being one of the most recent. All methods rely on the introduction of a trocar or catheter. Baker uses a long double lumen tube which is left in for a time during the postoperative period before being removed. Aside from facilitating closure, decompression may greatly simplify a dissection of the cause of obstruction that could not be done in the presence of the greatly distended loops. Then, of course, there is the matter of "toxicity" of the intraluminal contents which the patient will absorb if the bowel is not evacuated. In the absence of strangulation or infarction this factor is probably not of great importance. Probably of greatest importance is the fact that decompression allows circulation of the bowel wall to return to normal more rapidly and

thus promotes a more prompt return of normal physiological activity. It is the current concept that operative decompression is desirable under certain circumstances pertaining chiefly to the degree of distention and the extent to which the circulation of the bowel wall is embarrassed. The problem of where and when not to use operative decompression is a matter for judgment in each case. The following are what I consider to be the indications for and against operative decompression.

(a) *Operative decompression indicated*

- (1) Hugely distended bowel interfering with technical performance of operation;
- (2) When the degree of obstruction and difficulty and length of operation make one anticipate a protracted period of postoperative ileus;
- (3) Especially if the conditions mentioned in (2) above are accompanied by fecal or bacterial contamination making some degree of peritonitis a certainty;
- (4) If circulatory changes in bowel wall are so advanced that immediate relief of intraluminal pressure is thought mandatory.

(b) *Operative decompression not indicated*

- (1) In early obstruction with bowel not maximally dilated and circulatory changes insignificant;
- (2) Advanced dilatation of bowel but operation easy, short, and not contaminated;
- (3) Borderline cases in which it is probably better judgment not to add the trauma and contamination incident to decompression.

Before leaving the subject of decompression, it is very cogent to quote the remarks of Rives in discussing the paper in which Baker² described his method of decompression: "For a number of years it has been our standard practice to decompress the bowel at surgery. We have used catheters and rigid tubes and either I am very clumsy or the methods used were poor, for I usually made a mess of it. Despite the resulting contamination, I believe the advantages of this procedure outweigh its advantages."

Thus, after a long evolution it would seem that today operative decompression has acquired a respectable place in the surgical armamentarium and that, if properly applied, it may become a factor in the continued reduction in mortality.

(c) Postoperative Decompression

The beneficial effects of postoperative decompression following major abdominal surgery are so well known that it is unnecessary to make a persuasive presentation here. Effective suction through a tube in the stomach or duodenum can prevent postoperative abdominal distention and discomfort and contribute to a decrease in the complications, (pulmonary, abdominal, and circulatory) to which uncontrolled distention contributes. In recent years, decompression by gastrostomy, as suggested by Farris and Smith⁷ has been rather widely adopted and has avoided some of the undesirable effects of an indwelling tube in the esophagus and nasopharynx. Most surgeons would indicate that decompression should be continued until effective peristalsis is re-established, as evidenced by auscultatory sounds plus the passage of flatus per rectum. However, there is one problem area in which success of the surgical procedure may be so greatly dependent on prolonged and effective decompression that special consideration is warranted.

It has been my experience that some patients with prolonged and complicated operations on the bowel are so vulnerable to postoperative obstruction that special precautionary measures are justified. An example is the patient requiring re-operation for the fourth or fifth time for recurrent obstruction in whom the bowel is severely traumatized and two or three end-to-end anastomoses and several serosal repairs are necessary before the operation can be completed. Such a patient is almost certain to develop obstruction again and leakage and fistula formation are extremely likely. The surgeon is not only concerned about getting the patient through the operation but he hopes to leave the patient in such a condition that there will be less chance of recurrence of obstruction in the future. White²⁸ attacked this problem by providing decompression through a long intestinal tube inserted from jejunum to ileum at the operating table. The tube is left on suction for a prolonged period, theoretically producing complete decompression of the entire bowel, while healing and recovery of normal motility progresses. For several years, I have used a long intestinal tube in a similar manner, though with differing technical details. Using this aid it has been possible to salvage patients, without the recurrence of obstruction or fistula, who could not possibly have been done successfully other-

wise. The tube is brought out through the abdominal wall as a Witzel jejunostomy and is removed from 12 to 14 days or longer after operation. It is usually left in until it appears certain that the danger of obstruction and fistula has passed. Such a tube is sometimes used in cases of acute obstruction if protracted ileus is anticipated because of peritoneal contamination. It seems especially indicated in those cases requiring operative decompression. If the obstruction is severe enough to require decompression at the operating table it is my practice to insert a long tube. The use of a tube in this manner is the subject of a continuing study, the results of which will be reported subsequently. So far, used in the types of patients indicated above, it has proved to be a very useful tool. We have also used such a tube prophylactically in patients undergoing pelvic exenteration for cancer in the hope that the incidence of postoperative obstruction in these patients might be reduced; however, at the present time there does not appear to be a significant difference in the tubed patients and in the controls when the tube is used in this manner.

The occurrence of intestinal obstruction in the postoperative period is a disturbing occurrence and it is only the remarkable surgeon who will not play ostrich and hope that it really isn't so for a period of time before instituting or re-instituting gastro-duodenal suction. Usually, in retrospect, it is possible to see that suction could have been started 18 to 24 hours earlier. A fortunate aspect of the indwelling long intestinal tubes is that they are so easily put back to effective functional use at the first sign that something may be wrong and at no discomfort to the patient.

"TOXIC" ABSORPTION

The suspicion that the stagnated bowel contents associated with obstruction harbored some extremely "toxic" factor dates back many years. Moynihan¹⁷ stated: "The mechanical impediment to the onward flow of intestinal contents is not the cause of the serious condition to the patient. It is the overloading and distention of the gut above the block together with the absorption of contents whose bacterial virulence is greatly increased which calls for instant relief". Victor Bonney in advocating enterostomy in 1916 refers to a previous publication in 1910⁴ in which "I pointed out that the fatal result in these cases was due to toxic absorption from the upper intestinal tract brought about by an acute ascending

infection by *B. coli communis* and other organisms of the lower intestine in a state of exalted virulence and activity." Now, a half century later, we are left with what has proved to be for several years a fixed mortality rate attributed chiefly to "toxic" absorption—of a factor yet to be positively identified. In the meantime the pathophysiology of the associated derangement resulting from fluid, electrolyte and blood sequestration has progressed to the point of reasonable understanding and the mortality rate has been accordingly lowered.

Although simple mechanical obstruction can proceed to toxemia from bacterial invasion of the bowel wall, necrosis, perforation and peritonitis, it is the toxemia of strangulating obstruction that has presented the greatest problem. Indeed the prevention, diagnosis, and treatment of strangulating obstruction represents the final frontier in our battle against a residual mortality rate that is due primarily to this complication. Prevention can be accomplished to a degree by repair of external hernias and by care at the time of abdominal surgery not to leave a situation that may contribute to strangulation. Diagnosis may be facilitated by a high index of suspicion plus careful attention to the clinical findings that may indicate strangulation, such as tenderness, constant pain, fever, leukocytosis, fast pulse, a palpable mass. Refinements in x-ray studies of the abdomen have been helpful but still leave much to be desired. Recently experimental work in dogs by Geurkink and co-workers⁹ has suggested that radioactive serum albumin may be sequestered in early strangulation to such an extent that early detection may be possible by means of the scintogram.

The results of treatment are directly related to the length of time since onset, most observers agreeing that the mortality rate of strangulating obstruction is more than doubled if surgery is delayed for more than 24 hours. The clinical course and mortality rate are also influenced by the length of the strangulated segment and this fact, verified by animal experimentation, has been of value in the search for the elusive toxic factor. Aird¹, Wangenstein²², and others have shown the difference between long, medium, and short length strangulated segments of bowel. Using animals it was found that death resulted in long loop strangulation from sequestration of blood and plasma in the bowel without necrosis

or perforation taking place. In short loop strangulation death resulted from necrosis, perforation and peritonitis. It was the medium length strangulation loops that acted strangely, the animals dying not of perforation and peritonitis and not of hypovolemia secondary to sequestration. Instead, death of the animals seemed to be due to toxemia from bacterial overgrowth in the infarcted segment. Whether the toxemia is due to the bacteria per se, to a bacterial product, i.e., endotoxin or exotoxin, or to a substance resulting from bacterial action on proteins or blood pigment is an unsettled question. At the present time, it seems that most evidence points directly to bacteria as being the "toxic" factor, though Cohn⁶ can present very convincing indications that exotoxin of *Cl. Welchii* is the culprit. Furthermore it is the transudation of fluid and the migration of bacteria through the bowel wall into the peritoneal cavity that sets the stage for the violent toxic reaction. That the bacterial population in closed loop strangulation obstruction can increase with incredible rapidity has been shown by Cohn. Laufman and Nora,^{11,12} have demonstrated the proliferation of bacteria into the veins draining a strangulated loop of bowel and postulate that the release of the strangulation would permit these organisms and their toxins to reach the free portal circulation and thus explain the profound reaction that sometimes follows the relief of a strangulating obstruction.

It seems clear from all this work that strangulation of a medium segment of bowel allows the experimental animal, and probably the human, to live long enough for tremendous acceleration of bacterial growth with invasion of the bowel wall and mesentery via lymphatics and veins. Absorption through the mucosa of a strangulated segment ceases with the earliest rise in pressure but absorption from the peritoneal cavity is rapid and massive. The peritoneal fluid, at first pink and coagulable, becomes black, fetid and non-coagulable with bacterial invasion. Some of the products of bacterial action on this fluid have been suspected as being the "toxic" factor and one or more of these products may very well be toxic, but it is the bacteria that are the causative and precipitating factor. This is substantiated by the fact that experimental animals can be protected by antibiotics⁵. The greatest protection was found when antibiotics were injected directly into the strangulated loop.

CONCLUSION

The mortality rate from intestinal obstruction has dropped from the neighborhood of 60% at the turn of the century to 10% at the present time. Within the figure of 10% are included cases of early simple obstruction with a mortality of approximately 5% when treated by early surgery, and cases of advanced strangulation obstruction with "toxic" shock which produces a mortality rate of 70%. The factors that have contributed to the steadily decreasing mortality have been outlined in the preceding paragraphs, i.e., an understanding of the importance of water, electrolyte and colloid replacement; effective decompression; earlier operation and the advent of antibiotic therapy. The residual mortality of 10% is due predominately to strangulation obstruction. There can be no doubt there is indeed true toxic absorption under certain conditions of time and length of strangulated segment. The toxic factor is directly related to bacterial growth and notable absorption does not take place until the bacteria have invaded the peritoneal fluid under which condition the fluid becomes black and loses its coagulability. Animal experimentation demonstrates the protective effect of antibiotics and there is good reason for the vigorous use of antibiotics in the human. Zollinger²⁹ favors administration of antibiotics in all cases suspected of having intestinal obstruction due to the difficulty of differentiating simple and strangulation obstruction. The failure of the patient to respond to adequate hydration, blood and electrolyte replacement and antibiotics may indicate that toxic absorption is contributing to the shock-like state and relief can only be expected by removal of the gangrenous source of the infection. Support of the blood pressure by a vasopressor may be necessary under these conditions. Although we have reduced the mortality of intestinal obstruction greatly in the past half century we still have not solved some of the problems that were apparent to our colleagues fifty years ago. Our mortality rate has stumbled not over new problems but old ones. If we are to do better we should address ourselves to the following areas:

1. Earlier diagnosis and treatment of simple mechanical obstruction always with a high index of suspicion that strangulation may be taking place.
2. Effective, enlightened and sophisticated re-

suscitation, realizing that the replacement requirements may be spectacular, and being guided by an evaluation of all parameters with particular attention to hourly urinary output and central venous pressure.

3. Effective tube decompression of the upper gastro-intestinal tract during the period of preparation for surgery.

4. Early surgery for all persistent obstruction with resection and anastomosis being the procedure of choice for strangulation of small bowel.

5. Careful selection of patients for decompression of the intestine at the operating table.

6. Early intensive antibiotic therapy for all cases of strangulation obstruction and for all cases in which this complication is considered to be possible.

7. During the postoperative period continued controlled replacement therapy, continued adequate and appropriate tube decompression, and continued antibiotic therapy based on cultures of peritoneal fluid.

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Effect of Thyrocalcitonin in Man

G. V. Foster et al (Postgraduate Medical School, London) *Lancet* 1:107-109 (Jan 15) 1966

Thyrocalcitonin from pig thyroid was administered intravenously to three patients with hypercalcemia complicating disseminated malignant disease and to one normal volunteer. Thyrocalcitonin lowered serum calcium in the patients by 0.6 to 0.8 mEq per liter for periods of up to 18

hours. Ten units produced a small fall (0.25 mEq per liter) at six hours in the normal subject. These effects were probably due to the direct effect of the hormone on bone, causing increased calcium uptake. Thyrocalcitonin probably plays an important part in normal human physiology and possibly in clinical bone disease. Various studies on the compound have shown that thyrocalcitonin has direct influence on bone formation both in vivo and in vitro.

DIAGNOSIS OF RETINAL DETACHMENT

Morriss M. Henry, M.D.*

Don't shrug off that "chronic complainer" who says he saw black spots and flashing lights that were not really there. He could be nearing total blindness. Everyone sees occasional spots for one reason or another. But when they suddenly appear in noticeably large numbers and alarm the patient, he may have cause to be worried. A sudden onset of spots and flashes is one of the first symptoms of a retinal tear or detachment.

If treatment of a retinal tear or hole is not begun soon after these symptoms occur, the result for the patient can be total loss of vision in the affected eye. It is then in the interest of the ophthalmologist, the family physician, and most important, the patient, that the family physician be as alert to the symptoms of the retinal tear as he is to symptoms of brain or heart disorders.

It is not important for non-specialists to know how to treat a detached retina or find a retinal tear—only how to recognize symptoms that indicate that the condition may be present.

A vitreous hemorrhage should always alert you to the possibility of a beginning retinal detachment. Intraocular hemorrhage causing the black spots means some pathology is present in the eye. In most cases the retinal tear develops near or anterior to the equator and is hard to see without special instruments. Any unexplained intraocular hemorrhage, even a very small amount, should be considered indicative of a retinal tear until an examination of the entire fundus to the ora has proven otherwise. Flashing lights are probably due to excessive stimulation of the retina from shrinking vitreous. Shrinking vitreous is part of the normal aging process. The vitreous may become attached to the retina, sometimes as a result of an injury. As the vitreous shrinks it may pull a hole in the retina. The most common retinal tear appears in the shape of a horseshoe because the vitreous is pulling forward.

If a patient has a known retinal detachment in one eye, the other eye should always be examined. A portion of these patients will have or will develop a retinal tear and detachment in the fellow eye.

CAUSES:

Many patients will date the onset of their



PICTURE NO. 1

retinal detachment to a blow on the head or on the eye. Most retinal detachments are not ordinarily due to a blow, but the blow may make a beginning detachment become rapidly worse, and the patient suddenly aware of the loss of vision in his eye. In certain cases where there has been a laceration of the globe, vitreous traction bands may form, and, as they shrink, create retinal tears and detachments. For this reason, advise any patient who has had an injury to the eye that he should return at once if any of these visual disturbances occur in this eye.

EXAMINATION:

The instrument most physicians use in examining the retina is the direct ophthalmoscope. This is a satisfactory instrument for viewing the disc, macula and the retina posterior to the equator. However, the direct ophthalmoscope has some disadvantages in checking for early retinal detachment. First, examination of the anterior part of the retina is difficult when using the direct ophthalmoscope. Second: if the media is murky from blood or exudate, the strength of the ophthalmoscope light cannot provide adequate illumination. And third, while the magnification is nice when examining the macula and disc, it becomes too great when looking for retinal holes and diseases in the anterior part of the retina. This instrument adequately meets the needs of general practice, but it is easy to miss some retinal

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tear with the powerful magnification and corresponding small field of the direct ophthalmoscope. The instrument best suited for diagnosis of most retinal detachments is the indirect ophthalmoscope. It gives the best view of the anterior part of the retina where most retinal tears and detachments start. A disadvantage, however, is its inverted image which is often disturbing to even the most experienced users of the instrument. It is impractical for a general physician to bother with learning to use it, so here is where the ophthalmic surgeon should step in.

The importance of locating all tears prior to surgery cannot be overemphasized. A beautifully-performed retina operation can make a re-operation necessary if one hole is missed. It is continually surprising to find how many retinal detachment patients will have more than one tear in the retina. The correction of a retinal detachment requires the closure of all retinal tears.

OPERATION

In 1957, Schepens, Okamura and Brockhurst of Boston published the first in a series of articles on the scleral buckling procedure for retinal detachment. The purpose of this procedure is to create a scar between the retina and the choroid in the area of the retinal tear to seal the retinal hole. An advantage of the scleral buckle is that by pressing in on the choroid and retina with the buckle, the pull on the retina exerted by the vitreous traction bands is sometimes alleviated. This procedure, while tedious to perform, appears to offer the best prognosis for cure of the retinal detachment. When the scleral buckling procedure is used, reattachment is expected in 80-90% of the cases.

Some ophthalmologists reserve the resection and buckle procedures for complicated cases and use simple retinopexy for so-called simple cases. Over the past few years a number of ophthalmologists who specialize in retinal detachment surgery feel that the scleral buckling operation can be used in practically all cases of retinal detachment with a higher overall percentage of success. The following are the principal steps used in a retinal buckle operation as it is now being done.

OPERATIVE PROCEDURE:

Since the scleral buckling procedure, properly done, takes four to six hours to perform, it usually is best to have the patient under a general anesthetic. Before starting the operation, make sure

the pupil is well-dilated with 10% Neosynephrine and 2% or 5% Homatrophine. After the eye has been prepped and draped in the routine manner, a 4-0 silk suture is passed through the tarsus of the upper and lower lids for traction and held by hemostats. A lateral canthotomy is usually helpful. An eye speculum is used to hold the lids open at first, but it is usually removed when work is started on the globe itself.

The conjunctiva and Tenons capsule are opened about 3 mm from the limbus around the globe. Extraocular muscles previously decided upon are detached after a 5-0 plain gut is locked in the end of the muscle. A 4-0 silk is passed through the stump of the muscle for traction. Occasionally a third recti muscle may need to be detached from the globe, but more than two is usually undesirable because of the possible impairment of blood supply to the globe through the muscles. The remaining recti muscles are located and a 4-0 silk suture is passed under the muscle for traction.

EXPOSURE:

A difficulty the surgeon often encounters is exposing the portion of the sclera which corresponds to the retinal tear, especially when the tear is located posteriorly or on the nasal side. If the eye is gently pressed back into its socket, the posterior part of the sclera is more easily exposed than when the globe is proptosed.

LOCALIZATION:

Probably one of the most difficult steps in the operation is localization and marking the sclera over the retinal tear. This can be exasperating unless a good picture has been drawn of the retina and the assistant understands what is to be accomplished.

While looking in at the retina and locating the tears with the indirect ophthalmoscope, slip a flat-tipped electrode back along the side of the globe until pressure is exerted at the site of the tear. The rounded elevation produced by the electrode on the sclera is usually easy to see. When it coincides with the posterior edge of a break, turn the diathermy current on long enough to mark the sclera at this point. This produces a whitish mark on the retina if the retina is near the choroid. If the retina is elevated, no mark will show on the retina. Everything is reversed with the indirect ophthalmoscope and the probe is moved opposite to the direction to be expected from viewing the retina. It takes patience to accu-

rately localize the tears and mark the locations on the sclera.

UNDERMINING:

Undermining the sclera is done in order to obtain an even, thin layer of sclera. This permits the use of a much weaker diathermy current with fewer resulting complications and yet allows a consistent penetration of current to the choroid. The flaps of sclera that are used to cover the buckle have much less reaction with the extra-ocular tissues than the simple retinopexy or diathermy through the entire thickness of the sclera. By contrast, after a retinopexy there is marked inflammatory reaction and many adhesions between the globe and the orbital tissues. When reoperation is necessary after a retinopexy, it is often difficult to determine where the sclera ends and orbital tissues begin. The sclera is so swollen that the new diathermy penetrates poorly. Perforations and ruptures of the globe are frequent because of the wet-tissue-paper consistency of the treated sclera. This is avoided to an extent with the scleral buckle operation in which the silicone implant is sandwiched between the treated scleral area and the scleral flaps.

The scleral-undermining should be planned so the retinal tears will be situated on the anterior part of the buckle with a good area of diathermy around each tear. The width of the scleral undermining should extend at least 2 mm beyond the retinal breaks on either side. The length of the undermining should extend about 3 mm in an equatorial direction beyond any retinal breaks. A scleral undermining which completely circles the globe is not advisable in one operation.

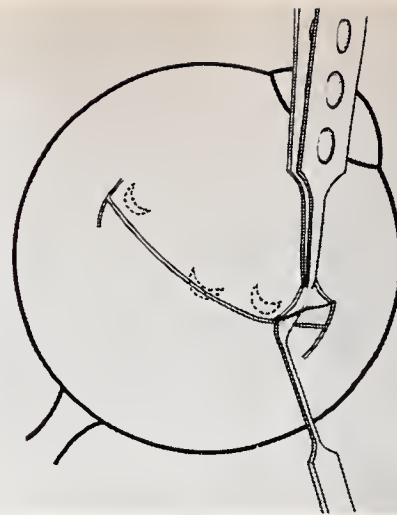
The scleral undermining is made with a Desmarres scarifier by scratching down on the sclera and peeling back the edge until a bluish color is seen. It is important for consistent penetration of the diathermy to have the remaining layer of sclera as uniform in thickness as possible (Picture No. 2)

SUTURES:

Sutures to anchor the silicone implant are then placed. The suture most commonly used for this is a 00000 dacron. It will be difficult to place this mattress suture in some posteriorly located areas unless you have good exposure, a small sharp needle such as Davis and Geck DO-1, and a curved needle holder with a fine bite.

DIATHERMY:

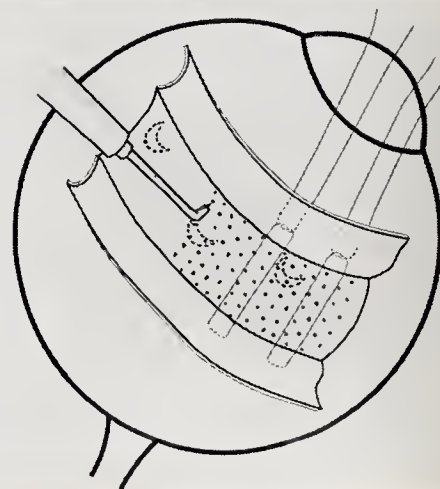
Before applying diathermy, locate the long



PICTURE NO. 2

ciliary vessels and nerves which run in the sclera under the medial and lateral rectus muscles. These can be seen by shining the indirect ophthalmoscope light in the eye while the assistant looks for them. No diathermy should be applied directly over the long ciliary nerve and vessels.

Diathermy is applied to the undermined area of sclera with a diathermy unit which can be regulated to give a consistent amount of current. Great care should be used to avoid perforation of the globe. This is accomplished best by having the diathermy needle point on a slight angle with the globe. (Picture No. 3)



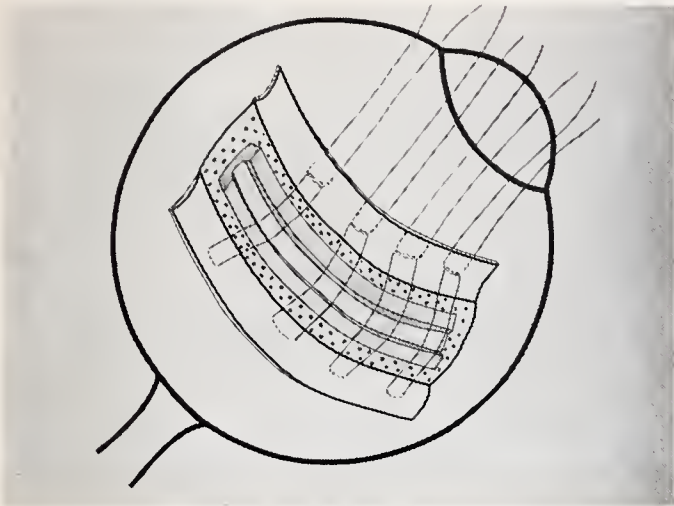
PICTURE NO. 3

SILICONE:

The material used for creating the scleral buckle is silicone rubber. A polyethylene tubing has been used, but this created pressure necrosis and erosion through the wall of the eye in some cases. Soft silicone does not seem to cause this pressure necrosis.

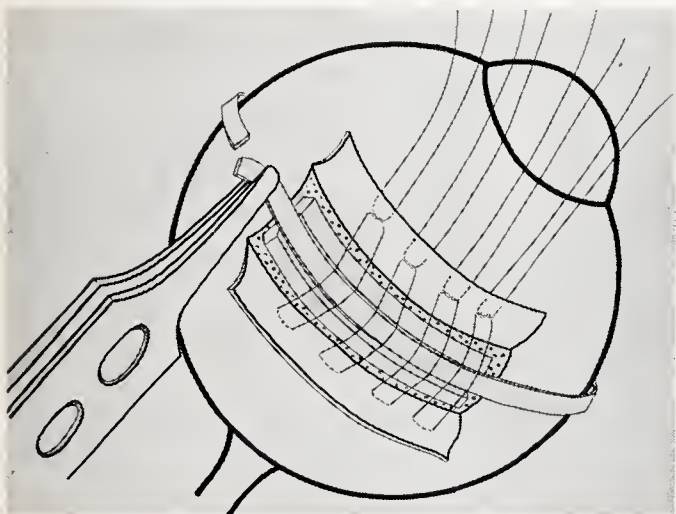
The scleral buckle is in two parts. One is a band of silicone which circles the eye. The other is the

silicone implant which fits into the bed of the undermined sclera. The purpose of the band is to hold the implant in position and aid the implant in pushing the choroid against the retina. (Picture No. 4)



PICTURE NO. 4

The band is passed under the recti muscles which were not detached and the silicone implant is positioned in the undermined area. All sharp edges of the implant are removed with scissors to prevent possible erosion through the thinned sclera. (Picture No. 5)



PICTURE NO. 5

VORTEX VEINS:

Vortex veins can sometimes be a problem. There are generally four but this is only an average. They vary a great deal in both number and location. If one is cut, it may cause intraocular hemorrhage, so they should be sacrificed only when absolutely necessary. If a vortex vein is located in the area of the undermining, the surgeon must take care in dissecting to avoid the intrascleral branches. If one is nicked, shift to some other area of the globe that needs some work

for a few minutes and the bleeding will stop. Do not try to coagulate the bleeding as this is seldom necessary.

PERFORATION:

After preparing the choroid with diathermy and placing the silicone band and buckle in position, release the subretinal fluid which is between the retina and the choroid. The treated choroid must remain in contact with the edge of the retinal tears if the operation is to be a success.

The area selected for perforation should have a good deal of subretinal fluid under it, and the location should be as distant from the retinal breaks as possible. Be sure to check the retina before deciding where to perforate because the fluid may have shifted while the buckle was being prepared. Usually the easiest place to perforate and release subretinal fluid is in the bed of the scleral buckle. (Picture No. 6) An incision



PICTURE NO. 6

is made down to the choroid with the scarifier in an anterior-posterior direction. A narrow blunt spatula is inserted in the scleral incision and pushed gently under the scleral lips in the supra-choroidal space for 1-2 mm to break the remaining scleral fibers and expose a knuckle of choroid. The perforation is done with the fine-pointed needle. Large vessels in the choroid can be seen as a reddish line and these should be avoided when puncturing the choroid with the needle.

Subretinal fluid should be released slowly so a tiny perforation is all that is necessary. A sudden gush from a large perforation is not desirable since it may cause the retina to herniate into the hole and incarcerate. This would require another perforation elsewhere. A gentle but steady pressure against the globe with a cotton tip applicator should release all the subretinal fluid and make

repeated perforations unnecessary. After the subretinal fluid has stopped, the mattress sutures are pulled up over the silicone implant and locked with a single knot. Now examine the retina to see if there is any remaining subretinal fluid and see that calculations were correct and the retinal breaks are located properly on the buckle, (Picture No. 7) If there is much residual subretinal



PICTURE NO. 7

fluid, the mattress suture over the perforation is loosened and more fluid coaxed out. Continue until there is little or no subretinal fluid remaining.

If perforation is needed in a place other than the bed of the resection, a 4-0 Mersilene mattress suture is placed through the lips of a scleral incision and the procedure performed in the above-described manner.

When the buckle inadequately covers the retinal hole or the buckle is too far forward, it must be corrected by loosening the suture and undermining further toward the disc, applying diathermy to the new area and using a larger silicone implant.

If a great deal of subretinal fluid has been released and the buckle seems to be too high, saline may be injected into the vitreous cavity through the pars plana. This is performed with a 30 gauge needle. For easier entry into the eye, touch the 30 gauge needle with the diathermy needle while pressing against the globe in the area of the pars plana. Make certain ocular tension is not more than 30-35 mm Hg after the saline injection.

TYING THE CIRCLING BAND:

Before tying the circling silicone band with the final knot, again check the ocular tension. It must be kept in mind that this material is elastic, and if

the band is tied too snugly around the eye, it may continue to exert pressure on the globe and create a prolonged elevation in ocular tension. It may also cause retinal folds. Fluid may flow through the folds over the buckle and cause the retina to detach again. Only a slight tension is needed when tying this band at the end of the operation.

Since this operative field has been open for some time and a foreign body has been placed in the orbit, it is usually routine to give an antibiotic for several days.

As tissue cannot adhere to silicone, be careful to prevent any exposure of the silicone implant. Anteriorly located implants must be well covered with scleral flaps. The muscles are re-anchored at their original position and Tenon's capsule is closed with interrupted sutures of 5-0 plain gut. The conjunctiva is sutured separately.

To prevent severe edema of the orbit it is usually advisable to put a certain amount of pressure on the closed eye for 24 hours. This is accomplished with some gauze padding and three strips of elastoplast. The unoperated eye is left uncovered. The patient is placed on bed rest with no restrictions as to position.

Examine the retina on the first post-operative day to check the position of the retinal buckle and for any changes that may have occurred. The patient is usually allowed up on the same day. By the third day the patient may use the operated eye and patching is discontinued. Pinhole glasses are not used before or after the scleral buckle operation. By the end of the first post-operative week, the patient is usually ready to be discharged from the hospital.

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STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., *Professor and Chairman*
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MANAGEMENT OF CERVICAL CARCINOMA IN THE ELDERLY PATIENT

Don R. Lewis, M.D.*

Although great effort is made to individualize treatment of carcinoma of the cervix in the younger patient, once a woman passes the menopausal years therapy tends to be based more on medical complications and stage of disease than on old age. Lending strength to our impressions that the extreme age of the patient is oft-times ignored is the sparsity of material in the literature dealing with this particular aspect of cervical cancer.

Welch and Nathanson¹ reported that 329 treated cases of carcinoma of the cervix in patients over 60 years showed an average length of life of 30 months as compared with 24 months in the 40-60 age group and 18.5 months in patients under 40.

Twombly and DiPalma² reviewed 171 cases of untreated carcinoma of the cervix and found that 50% were dead in 11 months, 58% by one year, 82% in two years, 87.7% in three years and 95.4% at the end of 5 years.

The life expectancy of these patients aged 49 or under was 10.2 months; patients aged 50-69 lived 22.6 months; and patients 70 and over lived only 14.8 months.

From a study of patients admitted to the University of Berlin Clinics Frommolt and Weninger³ concluded that the prognosis of carcinoma of the cervix in patients under 30 years of age was clearly

less favorable than in older women.

These studies indicate that carcinoma of the cervix tends to be less malignant in the older patient.

A 65-year-old white female in the United States during 1949 through 1951 could expect to live 15.2 more years⁴. Ogburn and Nimkoff⁵ in their Sociology textbook list a life expectancy of 11.2 years for a United States citizen 70-75 years of age. This figure was reached on the basis of statistics accumulated from 1957 through 1962.

Therefore, is an 80-year-old woman with invasive carcinoma of the cervix better served by a palliative dose of external irradiation therapy, or, do the advantages of a full radiation dose aiming for a cure, outweigh the dangers of an anesthetic plus two or three days of immobilization? This query prompted a review of our management of squamous cell carcinoma of the cervix in elderly patients at the University of Arkansas Medical Center.

MATERIAL AND METHODS

Fifty-four patients aged 70 and above with invasive squamous cell carcinoma of the cervix have been seen at the UAMC in the past 14 years. Nine patients have been lost to follow-up, three refused therapy and no therapy was offered to a fourth. The remaining forty-one patients were evaluated as a study group.

Twenty patients were treated with conventional therapy and twenty-one received palliative cross-

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fire. Conventional irradiation at this institution is a standardized combination of external therapy with the telecobalt machine; (2 cm. cobalt source having a half value layer of 12 mm. of lead) and internal therapy utilizing either an Ernst applicator, a tandem and cartridge belt loaded with radium, or a Meschan applicator loaded with cobalt. Internal irradiation is usually given in one application rather than by fractionation and is administered after about half of the external therapy has been given.

Standardized dosages aimed for are:

Cervix	10,000-12,000 R
Todd's A	7,500- 9,500 R
Lateral Pelvic Wall	5,000 R
Bladder and Rectum	less than 4,000 R

The bladder and rectum constitute the limiting factors.

Palliative cross-fire irradiation is given through four obliquely angling ports, two anterior and two posterior and aims to deliver 5,000 R to the cervix.

RESULTS

Results of the two methods of treatment are presented in Table I.

TABLE I			
TREATMENT	NO.	PATIENTS ALIVE	%
Conventional	20	10	50
Palliative	21	12	57
TOTAL	41	22	54
SURVIVAL AFTER THERAPY			

Over-all survival (3 to 149 months after treatment) was 54%. There was no significant difference between conventional and palliative therapy.

TABLE II					
TREATMENT	AGE				TOTAL
	70-74	75-79	80-84	85+	
Conventional	8/17	1/2	1/1	0/0	10/20
Palliative	4/10	4/6	1/4	0/1	9/21
TOTAL	12/27	5/8	2/5	0/1	22/41
Deaths by ages after conventional and palliative therapy.					

Table II compares patients by age groups. In the 70-74 year age group seven patients died of carcinoma, one as a complication of therapy, three of intercurrent disease, and one of unknown cause. Over-all mortality was 44%.

Five of the eight patients in the 75-79 age group have died. Three of residual cancer, one of complication of therapy and the other of intercurrent disease, giving a mortality of 62%.

In the 80-84 year age group one patient died

of carcinoma and one patient died of intercurrent disease.

A final 89 year old patient is alive sixty-three months after treatment.

TABLE III					
TREATMENT	STAGE				TOTAL
	I	II	III	IV	
Conventional	6/8	1/7	3/5	0/0	10/20
Palliative	1/3	1/6	4/9	3/3	9/21
TOTAL	7/11	2/13	7/14	3/3	19/21
Deaths by stage disease after conventional and palliative therapy.					

Table III shows death by stage of disease.

Mortality in Stage I was a high 64% with an average longevity of only twenty-five months.

One patient with a Stage II lesion died of carcinoma and another was dead in 13 months of severe post-irradiation necrosis and pelvic abscess. Average survival was 12 months.

Stage III lesions carried a 50% mortality rate in our elderly patients and, as expected, no Stage IV patients survived.

DISCUSSION

Although overall survival between patients receiving conventional and cross-fire therapy was not significantly altered, there was a striking difference in length of survival. After conventional therapy non-surviving patients lived an average of 37 months; as compared to 10 months for those receiving palliative cross-fire. Overall survival is shown in Figure 1. Whether analyzed by age

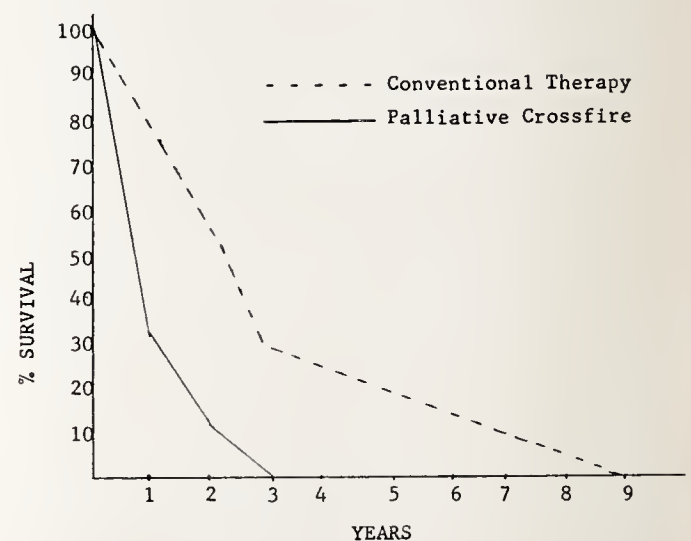


FIGURE 1.

Length of survival after conventional and palliative therapy for carcinoma cervix.

group or stage of disease, without exception, patients receiving conventional therapy showed an increase in average survival time. However, it is

necessary to recall that 17 of 20 patients receiving conventional therapy were in the younger age group of 70-74 years and 15 of 20 were patients with Stage I and II lesions. This advantage is offset by the two patients in our series who are alive 10 and 12 years respectively after palliative cross-fire.

A review of these forty-one patients quite thoroughly refutes our impression that elderly women do not tolerate internal radium application well.

Medical complications were numerous, as might be expected, with fifteen patients having hypertensive cardiovascular disease; four with arteriosclerotic heart disease; two with diabetes mellitus and one patient with cholelithiasis. However, only one patient had a serious complication directly related to her immobilization. She developed bronchial pneumonia and had a CVA during her internal therapy. Two patients did develop severe post-irradiation necrosis and died within a year after treatment. There were no deaths associated with irradiation in the group treated by the cross-fire technique.

Sixty-four percent of the patients with Stage I lesions and 57% of patients with Stage III carcinoma had serious medical complications in addition to their malignancy regardless of treatment. These two groups showed a higher mortality than the group with Stage II lesions in whom only 39% had serious medical complications. Thus mortality tended to be proportional to percentage of patients with severe medical complications.

SUMMARY

Forty-one patients, aged 70 and above with invasive squamous cell carcinoma of the cervix treated at the University of Arkansas Medical Center over the past 14 years have been reviewed. The therapy, mortality, and longevity were evaluated with respect to age and stage of lesion.

CONCLUSIONS

1. Over-all survival in 41 patients was 54%.
2. Comparison of palliative with combined internal and external therapy revealed no significant difference in over-all survival. However, length of survival in the latter was greater.
3. The patients tolerated radium implant well and no fatalities were associated with anesthesia or immobilization.
4. Mortality increased in direct proportion to associated serious medical complications regardless of type treatment.
5. Palliative therapy, merely on the basis of advanced age, does not seem warranted.

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Pale Cell Acanthoma

F. G. Zak (Flower and Fifth Avenue Hosp, New York), M. Martinex, and A. L. Statsinger; *Arch Derm* 93:674-678 (June) 1966

Pale cell acanthoma, an entity recently established by French investigators, is characterized by an usually solitary lesion commonly found on the lower extremities of adults. The appearance is that of a round, reddish, elevated, occasionally bleeding or crusted growth not larger than 20 mm but often smaller. If left untreated, it can remain

as long as 25 years. Treatment is surgical. Recurrences are unknown. The microscopic appearance is unique, revealing regular acanthosis with striking pale prickly cells, rich in glycogen, and edematous vascularized papillae. A sprinkling of various inflammatory cells in the dermis and the epidermis and parakeratosis are noted with regularity. A sharp border between the normal and abnormal epidermis is typical. Six pertinent cases are recorded, two of which were followed for 10 and 3 years, respectively.

TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



SUNLIGHT AND SKIN

III. Degenerative and Neoplastic Effects*

W. Mage Honeycutt, M.D.,** Calvin J. Dillaha, M.D.** and G. Thomas Jansen, M.D.**

The two previous articles of this series covered the physics and physiologic effects of sunlight and artificial ultraviolet light (UVL)¹ and the photosensitivity disorders². This final paper discusses the degenerative and neoplastic changes of the skin induced by chronic sun exposure.

DEGENERATIVE CHANGES

Advanced degenerative changes of the skin caused by prolonged irradiation with sunlight are epitomized by the terms "sailor's" and "farmer's" skin. These changes are not brought about by a few sunburns, but rather from small increments of sun exposure over many years. Radiation with UVL is cumulative in the skin, much the same as are x-rays. Though the irradiated area appears to recover completely after a sunburn, there is residual damage which is added to with each succeeding exposure, until the total effect is one of clinical abnormality. But like x-rays the effect of sunlight is dependent on the absorbed dose—the dose reaching the lower epidermis and dermis. Swarthy individuals with good tanning ability are, therefore, less susceptible to these degenerative effects because the melanin in the upper portions of their skin filters out most of the UVL, preventing it from penetrating to the lower portions. Negro skin is an excellent example of the protective action of melanin, as

degenerative and neoplastic changes of the skin are rarely seen in this race. Given the same amount of exposure, therefore, a fair complexioned blond will develop degenerative changes years earlier than a dark brunette.

The mechanism by which UVL induces these changes is in all likelihood similar to that of x-rays, since both are electromagnetic waves, differing only in wavelength. Whatever the mechanism, the induced changes are readily seen clinically and histologically.

Figure 1 illustrates the mottled pigmentation, deep lining and degeneration of the neck and "V" of the neck in a relatively young woman, contrasting with the unexposed areas of the shoulders and chest. Note the normal appearance of the skin in the area shaded by her chin. Figure 2 shows the excessive lining and furrowing of the face primarily due to sun exposure. Even in the very elderly with such changes as shown, the unexposed skin of the back and particularly of the buttocks is almost completely normal in regard to its texture, thickness and elasticity. Age alone may bring on a decrease in body hair and sebaceous gland function, but the epidermis and dermal collagen and elastic fibers are well preserved in unexposed areas.

Histological examination of chronically exposed skin reveals a great deal about the clinical appearance. Examination of figure 3 will reveal

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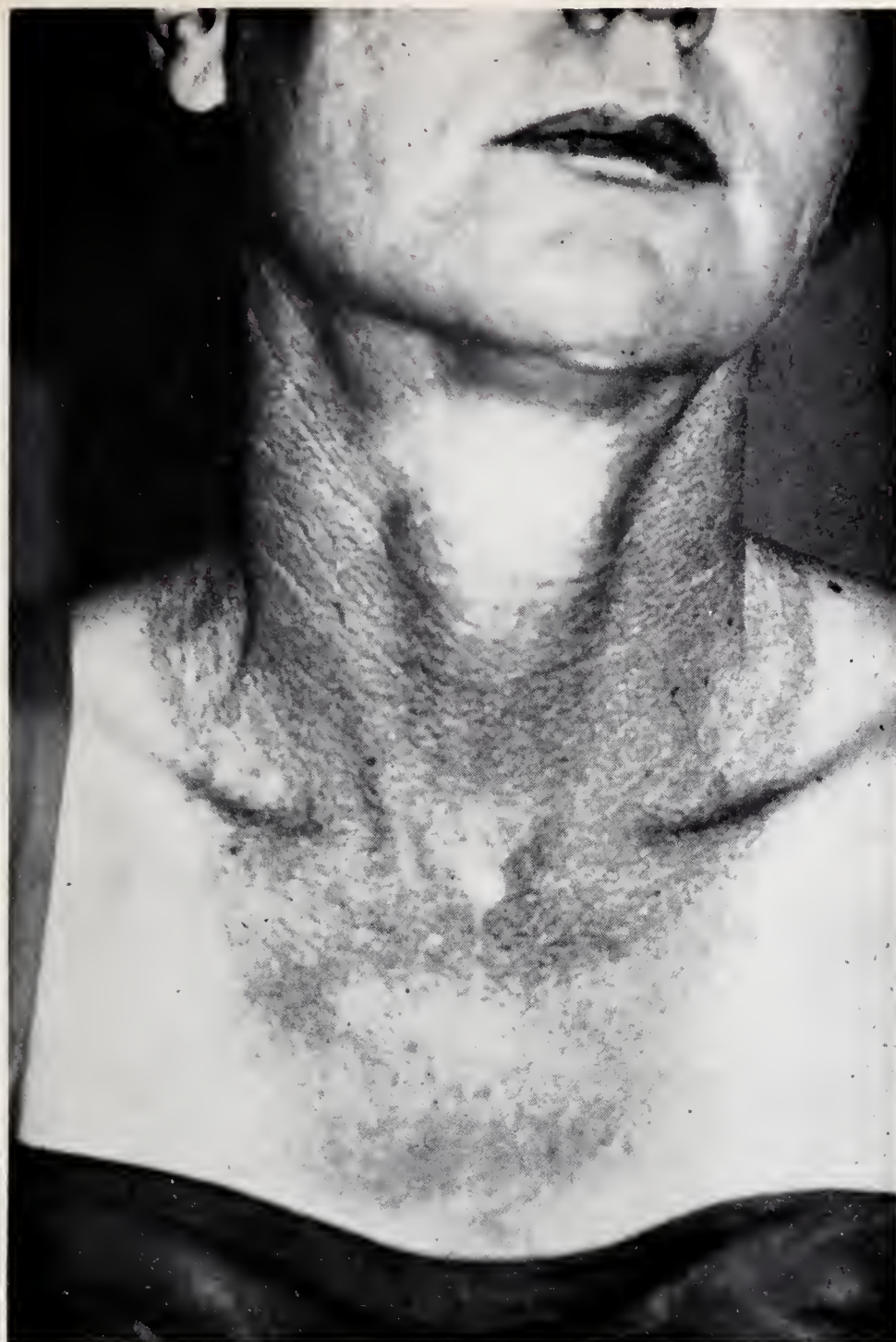


FIGURE 1
Permanent mottled pigmentary changes and furrowing of sun exposed skin contrasted with unexposed skin in a relatively young woman.

thinning of the epidermis and flattening of the rete ridges, accounting for the clinical appearance of thinness and translucency. However, the most important changes are in the dermis. The collagen in the upper dermis is partially homogenized, lacking the fibrous appearance of normal collagen, and dilated vessels are numerous. Below this may be seen small worm-like fibers, disoriented and fractured (Fig. 4). These are elastic fibers which normally are not seen at all on H & E stains. In addition to these morphological changes, biochemical abnormalities are demonstrated by the upper collagenous fibers staining

basophilic rather than eosinophilic. This change is called basophilic degeneration of the collagen, a regular finding in chronically sun-exposed skin. These dermal changes are responsible for the clinical loss of elasticity, allowing the skin to be pulled up in folds which do not snap back into place. They account also for some of the sagging seen on the face and neck.

Age is of importance in these changes principally as an indicator of the total opportunity the individual has had to expose himself to the sun.

As of this writing there is not available a reliable method for treating degenerative changes as



FIGURE 2

Deep furrows and wrinkling in elderly woman.

have been described. Plastic surgical procedures may, for a time, alleviate the sagging and reduce the conspicuousness of the lines, but these recur in time. Anyway, the basic changes are still present. A relatively new procedure known as chemerasure holds some promise for eradicating superficial lines, but the deeper furrows are untouched by this technique. It is still experimental,

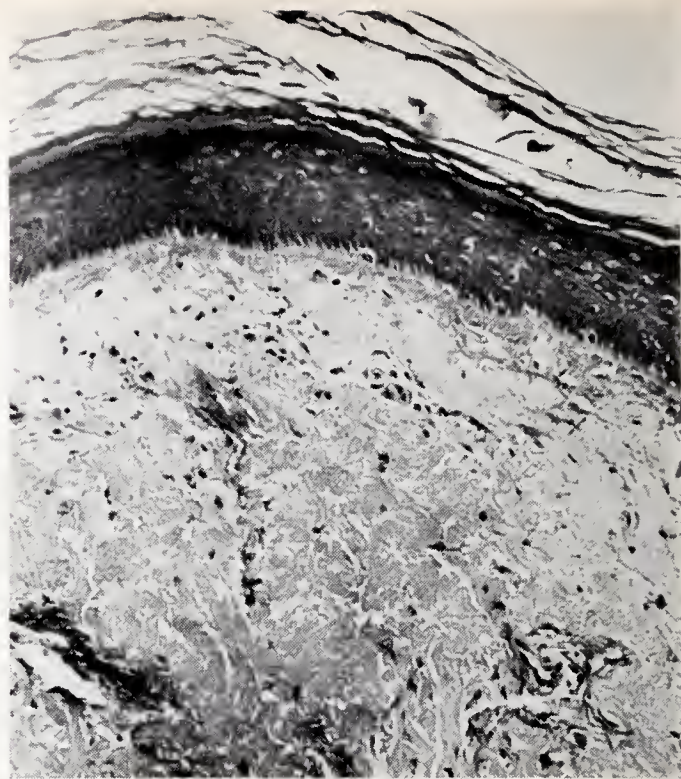


FIGURE 3

Chronic actinically damaged skin.

and more experience is needed before chemerasure can be generally offered. Dermabrasion, while effective for superficial lines, has little

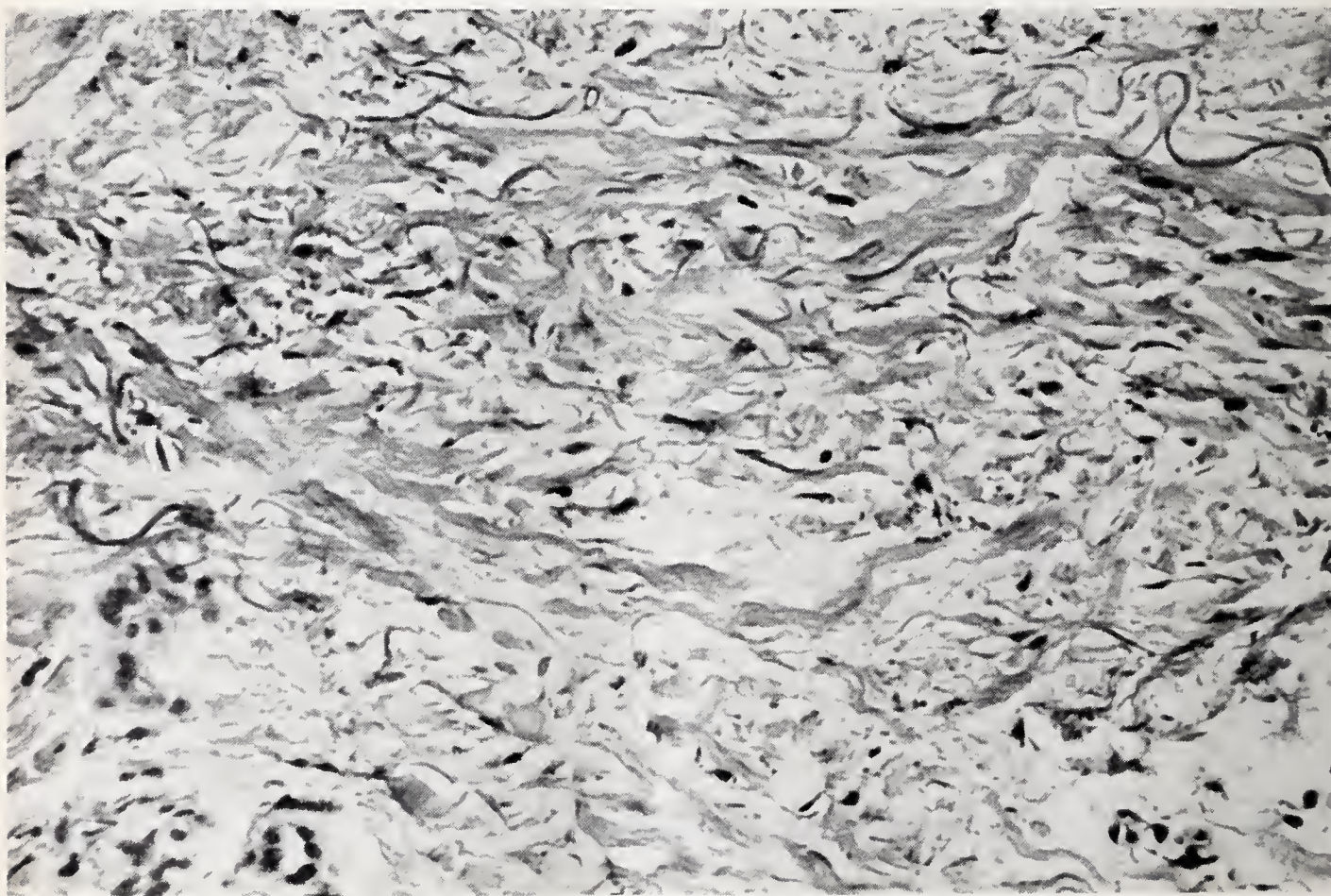


FIGURE 4

Atrophic elastosis.

effect on the deeper lines or the basic process. Hormone creams have been vigorously promoted by the cosmetic industry to restore youthful appearance to wrinkled, degenerating skin. If the concentration of hormone in the cream is high enough to accomplish this purpose, marked systemic effects are seen because of the readily absorbed nature of hormonal substances. If the concentration is low enough to avoid systemic effect, such as intermenstrual bleeding, it is just an outrageously expensive cold cream. An ounce of prevention is worth many pounds of hormone cream.

Lentigines, more commonly but less correctly known as "liver spots", are another form of degenerative change due to sun exposure (Fig. 5). These result from damage to the melanocyte system and are seen almost exclusively on chronically exposed areas. The most common location is on the backs of the hands. Histologically the lesion is characterized by clubbing of the rete ridges with a greater than normal number of active melanocytes in the basal cell layer (Fig. 6). Frequently lentigines are so numerous that therapy seems futile, but they can be removed by very superficial destruction. Our choice is with light freezing with dry ice or liquid nitrogen. Occasionally bleaching creams such as 2% hydroquinone cream (Eldoquin) may be successfully used.



FIGURE 5
Lentigo on bridge of nose.

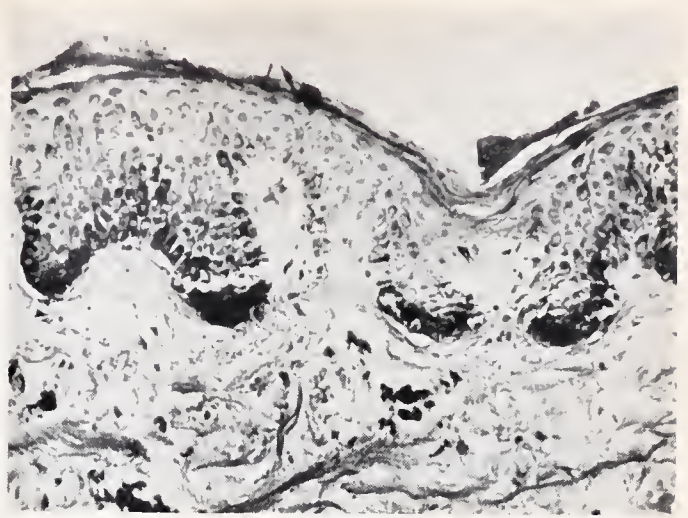


FIGURE 6
Lentigo.

NEOPLASTIC CHANGES

Neoplastic changes attributable to chronic sun exposure are actinic keratoses, cutaneous horns, basal cell epitheliomas and squamous cell carcinomas.

Actinic Keratoses. Actinic keratoses and senile keratoses are synonymous terms but the former is much preferred. Not only does actinic indicate the etiology of the keratoses, but also does not have the connotation which the term senile carries. These lesions are found exclusively on chronically exposed areas, beginning as slightly scaling erythematous macules (Fig. 7). While they may seem to come and go for a while, ultimately they persist. The usual, well developed actinic keratosis is scaly, red, $\frac{1}{2}$ to 1 cm. in diameter, non-infiltrated and rough to touch. Subjectively, sensations of crawling, stinging or itching are often present, and of some diagnostic importance is the fact that moderate pressure of rubbing the lesion elicits the complaint of being pricked with a pin. Intermittently the scale may come off allowing the patient the mistaken notion the lesion has disappeared. The scale is often so adherent that manual removal produces slight bleeding.

Actinic keratoses will frequently have such profound atrophy that close inspection reveals tiny yellowish dots just under the surface. These are sebaceous glands which normally are never visible. On the other hand, keratoses in late stages may manifest such marked epidermal thickening as to present clinically as a nodule or plaque on the skin. The dorsum of the hand is a common location for this type (Fig. 8).

In Diverticulitis...

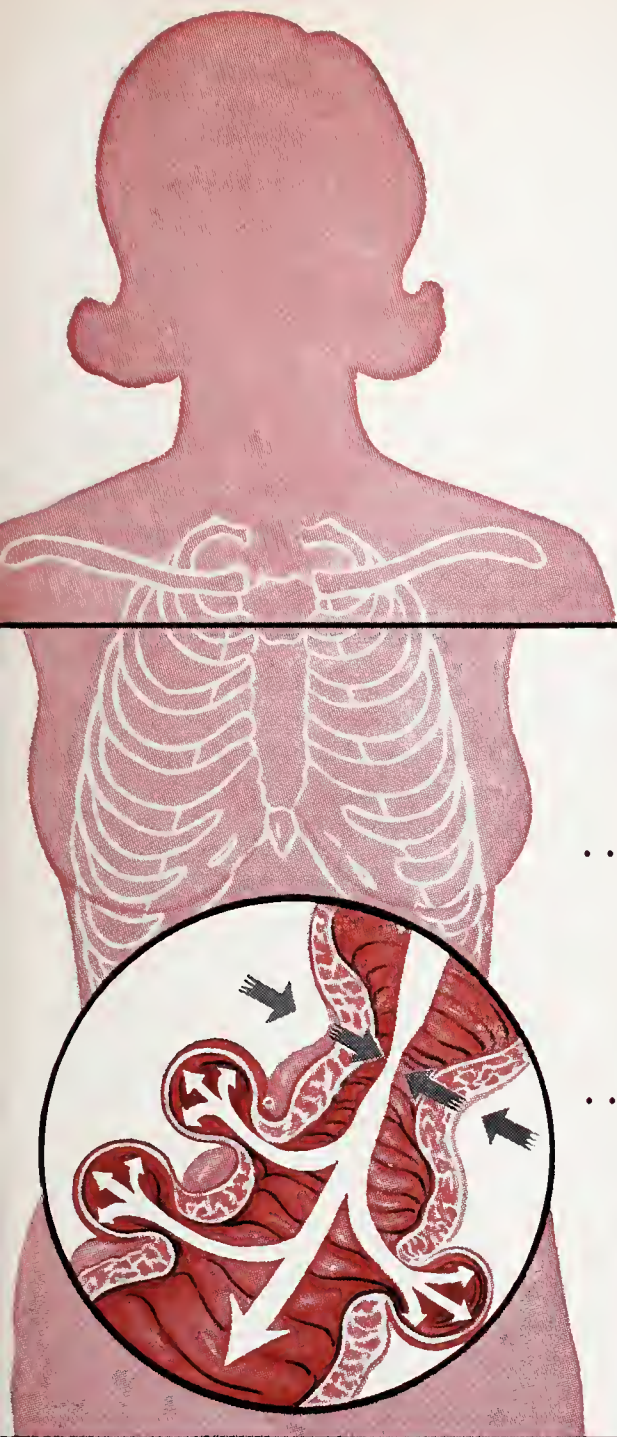
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FIGURE 7
Multiple actinic keratoses.



Histologically an actinic keratosis characteristically shows thickening of the stratum corneum (hyperkeratosis), thinning of the epidermis, mild disorientation of the prickle cells with occasionally bizarre forms (dyskeratosis), but no invasion below the basal cell layer. The upper dermis shows basophilic degeneration and a mild chronic inflammatory cell infiltrate (Fig. 9).

Cutaneous Horns. Some actinic keratoses may progress into cutaneous horns (Fig. 10 and 11). The development of a horn is determined by certain factors of keratinization, chiefly abnormally keratinized cells with greater than normal adhe-

sive properties. The cornified cells fail to slough normally as newly cornified cells are produced, allowing a build up of horn-like material over the lesion. Some cutaneous horns have reached a length of 5 to 6 inches. The importance of this lesion lies in the statistic that 25% of them will have squamous cell carcinoma at their base. Because of this they should be destroyed thoroughly or surgically excised.

Basal Cell Epitheliomas. Often called basal cell carcinomas or rodent ulcers, these are slowly growing non-metastasizing but invasive tumors arising from pluri-potential basal cells of the epi-



FIGURE 8
Actinic keratoses on dorsum of hand.

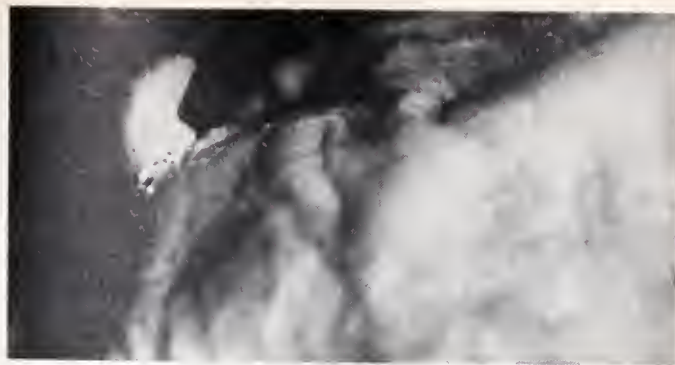


FIGURE 10
Cutaneous horn on dorsum of hand.

dermis or hair sheaths. It probably is the most common of all malignancies, and certainly the most common malignant tumor of cutaneous origin, although accurate data is lacking. In our own private practice an analysis of 3,300 consecutive histologically proven skin malignancies over an 8 year period revealed a ratio of 10:1 basal cell over squamous cell carcinomas. The overwhelming majority of basal cell epitheliomas occur on the exposed areas of the head and neck.

That sunlight is etiologically important in the

production of basal cell epitheliomas is implied by: (1) most of the lesions appear on chronically sun exposed areas, (2) four times greater incidence in the south and southwestern United States as compared to the northern regions^{3,4}, (3) greater incidence in the male⁴, and (4) rarity in heavily pigmented races. Other factors are known to produce basal cell epitheliomas, such as chronic arsenic intake^{5,6} and previous severe x-ray damage⁷, but these may be considered rare causes compared to the overall number.

Basal cell epitheliomas are dependent upon their stroma for survival as has been demonstrated by Pinkus⁸, and this explains their non-metastasizing nature. There are reports of basal cell epitheliomas metastasizing, but they number less than a hundred and occurred in persons with far advanced extensive lesions.

Recognition of a "typical" basal cell epithelioma offers little difficulty. However, it is prob-

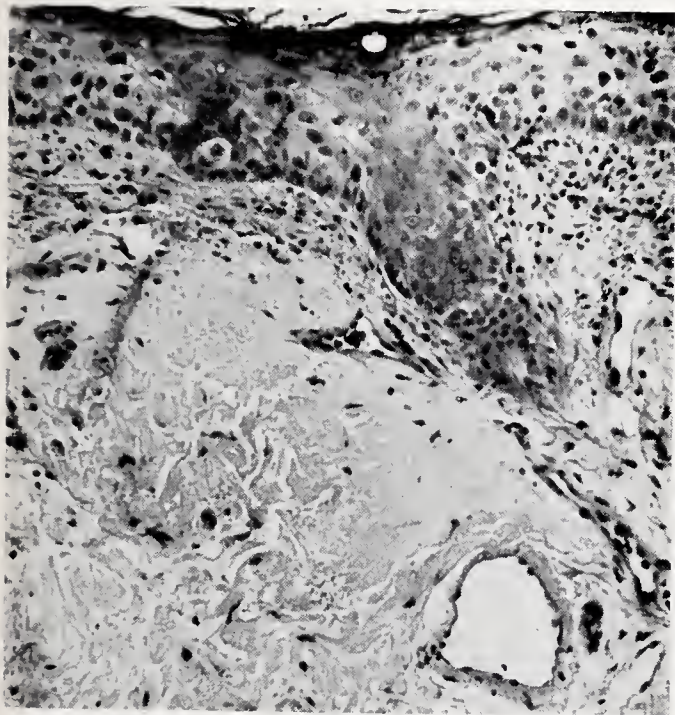


FIGURE 9
Actinic keratosis.

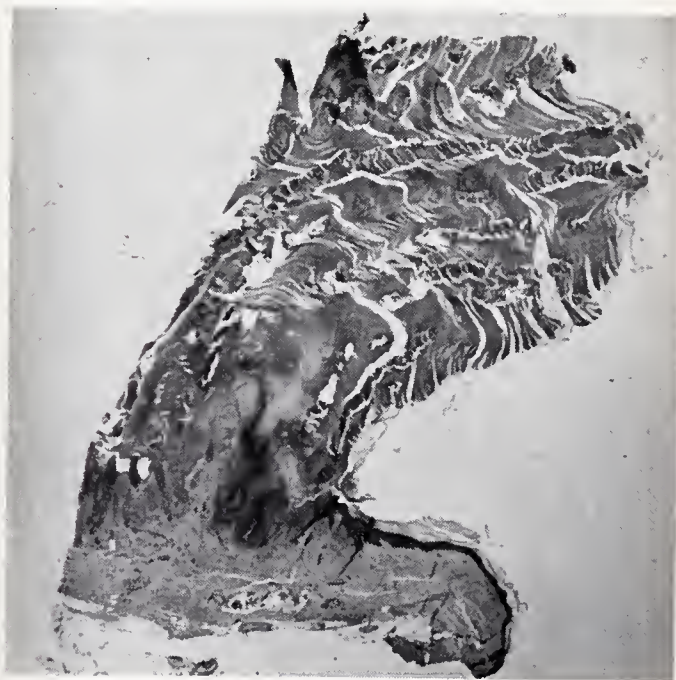


FIGURE 11
Cutaneous horn.

ably not well appreciated that there are several morphological varieties of this tumor, both clinically and histologically. Recognition of all of them is important not only for the sake of diagnosis, but also because therapy may differ greatly among them. The various types may be listed as follows: (1) nodulo-ulcerative, (2) pigmented, (3) morphea-like, and (4) superficial erythematous. Their characteristics, both clinical and histological, and treatment will be dealt with individually.

Nodulo-ulcerative Basal Cell Epithelioma. This is the "classical" type and is demonstrated in figures 12 and 13. Although ulceration may occur later, the lesion initially is a papule or nodule with a translucent sheen, particularly when the surrounding skin is stretched away from it. Telangiectatic vessels coursing over its surface are usual, and the borders are fairly well defined. When ulceration does occur the borders are still translucent and seem to be rolled. The growth of all types of basal cell epitheliomas is usually very slow and relatively small lesions may have been present for years. Rapid enlargement may occur at anytime, however, and particularly after trauma or incomplete removal. Direct invasion



FIGURE 12
Nodulo-ulcerative basal cell epithelioma.

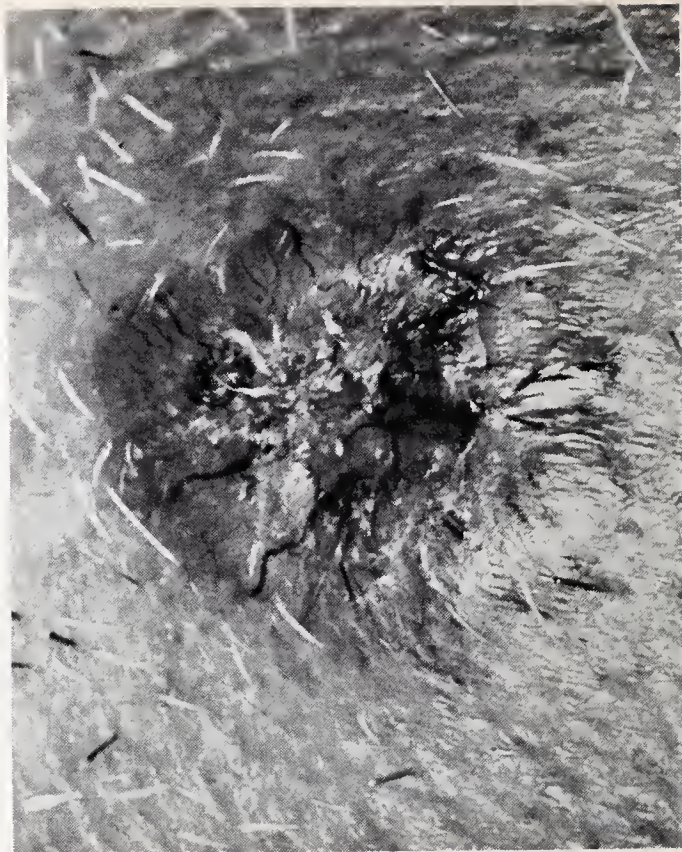


FIGURE 13
Close up of nodular basal cell epithelioma.

of underlying structures is usual, but it is not uncommon for the tumor to reach bone or cartilage and grow along its surface underneath the skin rather than invade it. Distant extension along nerve sheaths and adventitia of vessels is seen and is one of the worst features of this tumor.

Histologically, the tumor is made up of large nests of uniform basal cells, the cells at the periphery showing palisading. The majority of the tumor is cellular with a minimum of supporting or stromal elements (Fig. 14).

Pigmented Basal Cell Epitheliomas. Other than containing pigment this type is no different from the nodulo-ulcerative variety. Its importance lies in the fact that it *does* contain pigment and must be differentiated from other pigmented lesions, most notably malignant melanoma. Most often the lesion will have a speckled appearance or the pigment will be arranged in minute lines, but occasionally the entire lesion will be brown or blue-black (Fig. 15). There is almost never any pigment spread out from the periphery as in malignant melanoma. Disregarding the pigmentation, the clinical appearance will be that of a nodular basal cell epithelioma. Proper recognition will often forestall an extensive or mutilat-

ing surgical procedure.

Histologically the picture is identical with the nodular type with the exception of dark clumps of melanin.

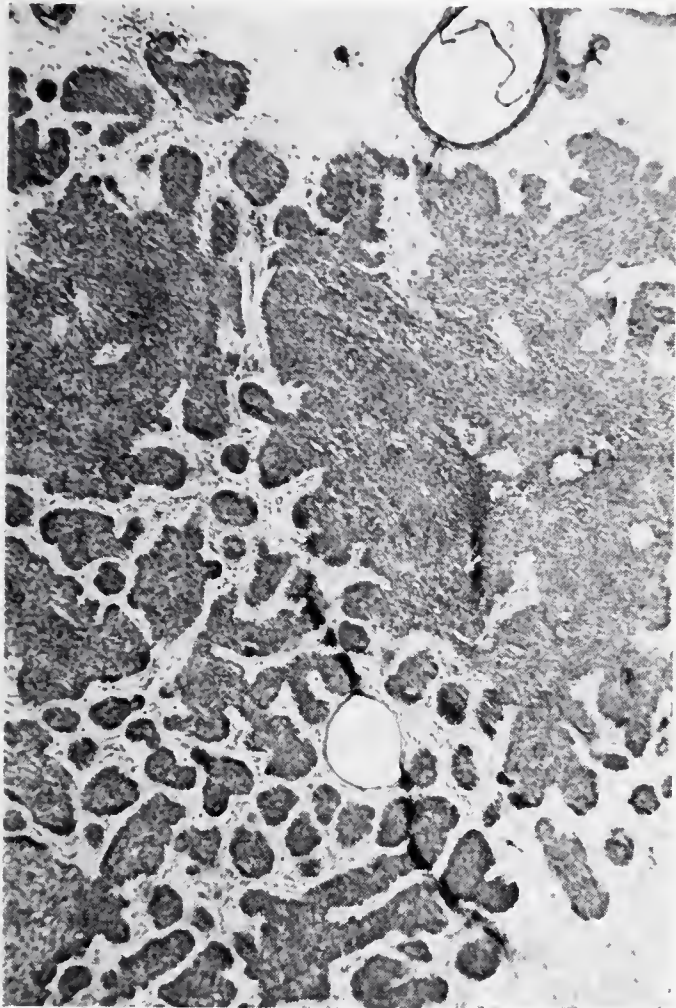


FIGURE 14
Nodular basal cell epithelioma.

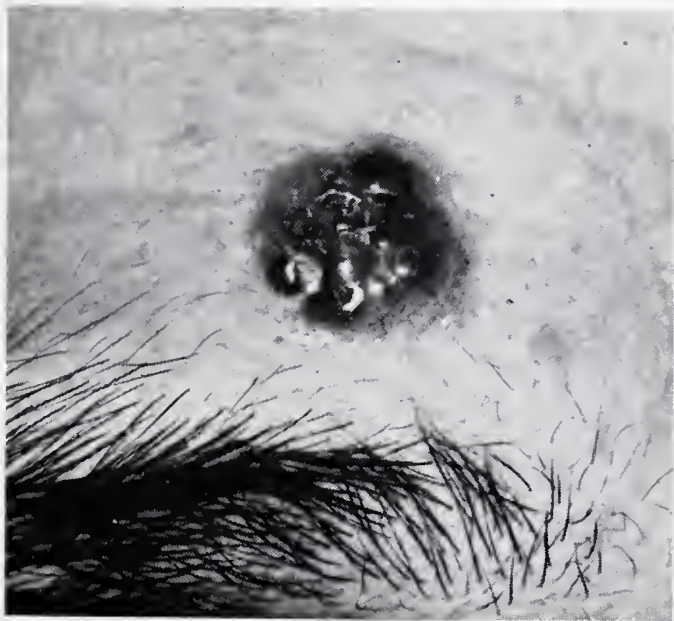


FIGURE 15
Pigmented basal cell epithelioma.

Morphea-like Basal Cell Epithelioma. This type may arise de novo or after inadequate treatment of a pre-existing basal cell epithelioma. It begins as a subtle firmness in the skin with little or no epidermal change. Later it appears either flat or slightly depressed like a scar, is yellowish white in color and blanches slightly when the surrounding skin is tensed (Fig. 16). These char-



FIGURE 16
Morphea-like basal cell epithelioma.

acteristics give rise to the term "morphea-like" since it mimics localized scleroderma. Ulceration is rarely noted and in fact the surface of the lesion is only slightly changed from normal. This is why the lesion is so often misdiagnosed as a scar and treatment often delayed a dangerously long time. The lesion has very indistinct margins, making difficult the clinical demarcation of the tumor.

Histologically this type is composed of two elements, the small strands and nests of basal cells and a fibrous, proliferating connective tissue stroma (Fig. 17). The stroma is more prominent than the basal cells, accounting for the scar-like appearance and feel of the tumor.

Superficial Erythematous Basal Cell Epithelioma. This lesion has a predilection for the trunk, but is also seen frequently on the face. Facial lesions are commonly solitary while on the

trunk they are usually multiple (Fig. 18). Chronic inorganic arsenic intake (Fowler's solution, chill tonics, etc.) most commonly gives rise to the multiple truncal lesions, while sun exposure is held accountable for those on the face. These lesions

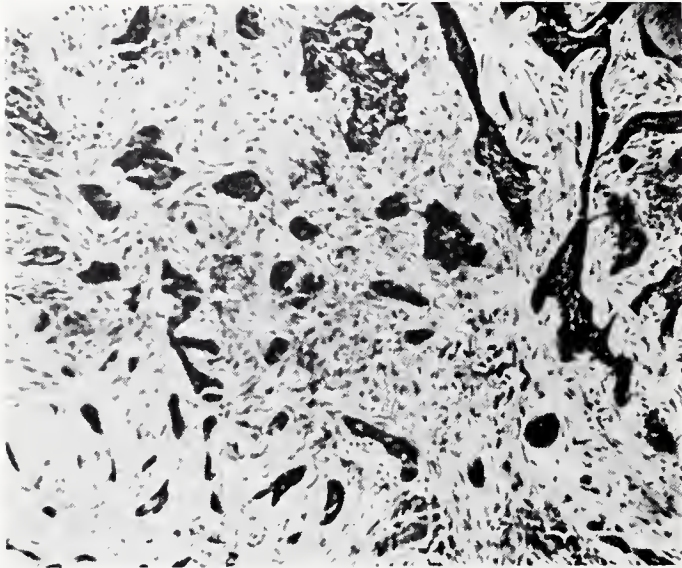


FIGURE 17
Morphea-like basal cell epithelioma.



FIGURE 18
Multiple superficial erythematous basal cell epitheliomas of the trunk.

are commonly mistaken for patches of eczema or psoriasis. They are red, slightly scaly, and may have mild epidermal atrophy. A diagnostic feature is the slightly elevated thread-like border of the lesion, and its presence requires close inspection, but it is occasionally absent (Fig. 19). Growth of these lesions is very slow and by peripheral extension rather than deep invasion. It is not uncommon for lesions to have been present over 20 years on the torso and to reach a size of 5 to 10 centimeters in diameter. In lesions of very long duration, nodules may develop on their surface and invasion deep into the

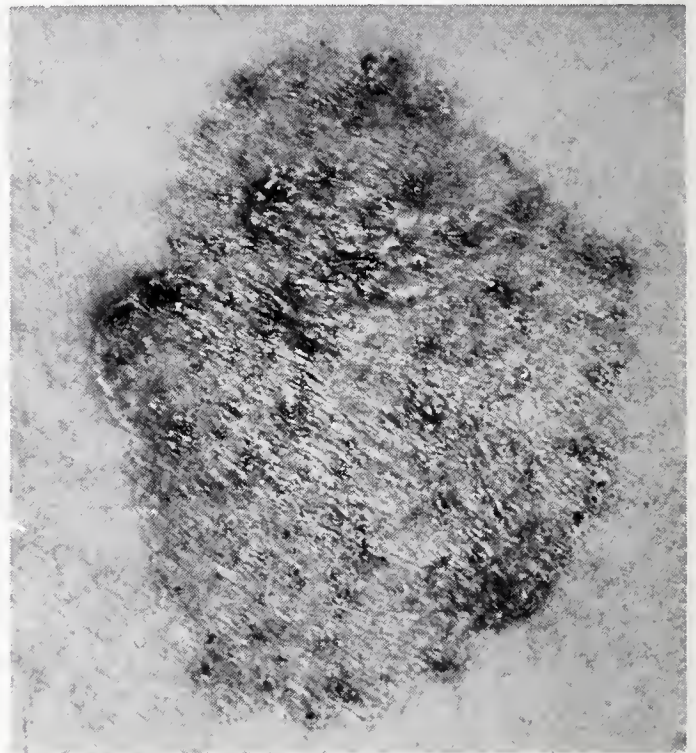


FIGURE 19
Close up of superficial erythematous basal cell epithelioma demonstrating translucent elevated thread-like border at left.

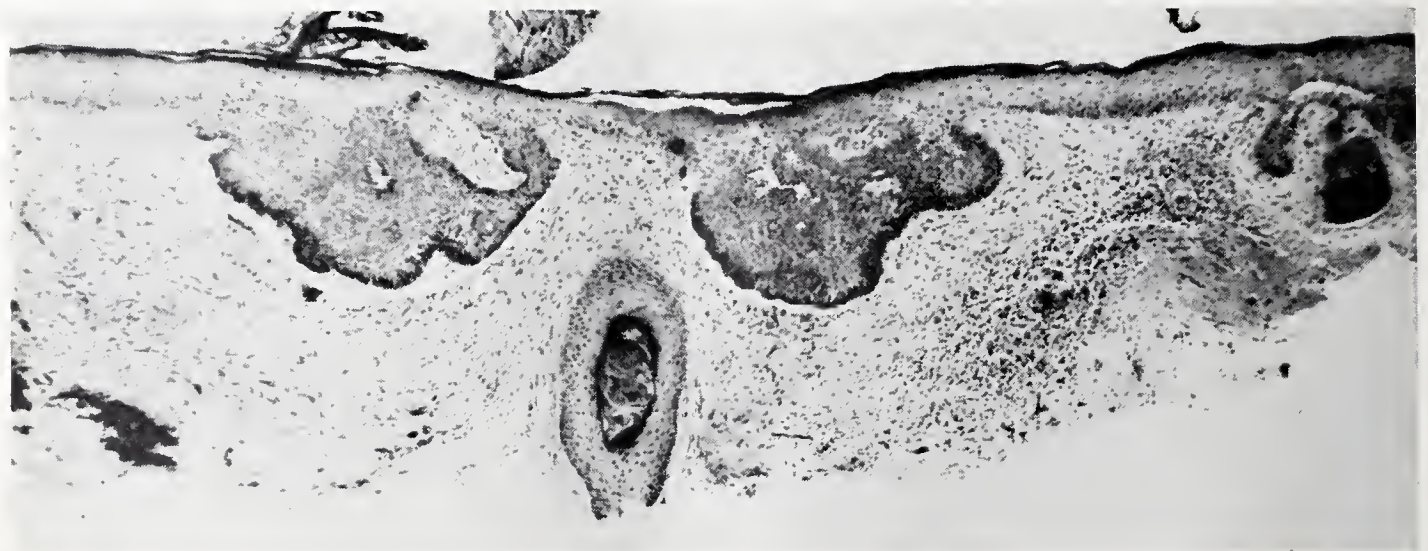


FIGURE 20
Superficial erythematous basal cell epithelioma.

dermis may occur. These are the most benign of all basal cell epitheliomas.

Histologically small nests of basal cells are seen

to be proliferating off of the epidermis, penetrating the dermis only in its uppermost portions (Fig. 20).

Treatment of Basal Cell Epitheliomas. The cure of basal cell epitheliomas should not be difficult. Most tumors are readily accessible, located on the face, and diagnosable early. When diagnosed early no other invasive tumor is more amenable to cure than basal cell epithelioma.

Since the response to therapy as well as the choice of therapy varies considerably with a particular growth pattern of the tumor, accurate pathological classification as well as clinical appraisal is essential in achieving a high cure rate. Ideal management for all basal cell epitheliomas (and mandatory for some) would include pathologic information to correlate with the clinical examination, before therapy is instituted. In office practice the immediate frozen section⁹ has been used very successfully by us to accomplish this. Each case must be individualized to obtain a high cure rate, and having available several modalities of therapy and experience in their use is essential, for no one type of treatment is best for all tumors.

The modalities of therapy for basal cell epithe-



FIGURE 21
Squamous cell carcinoma.

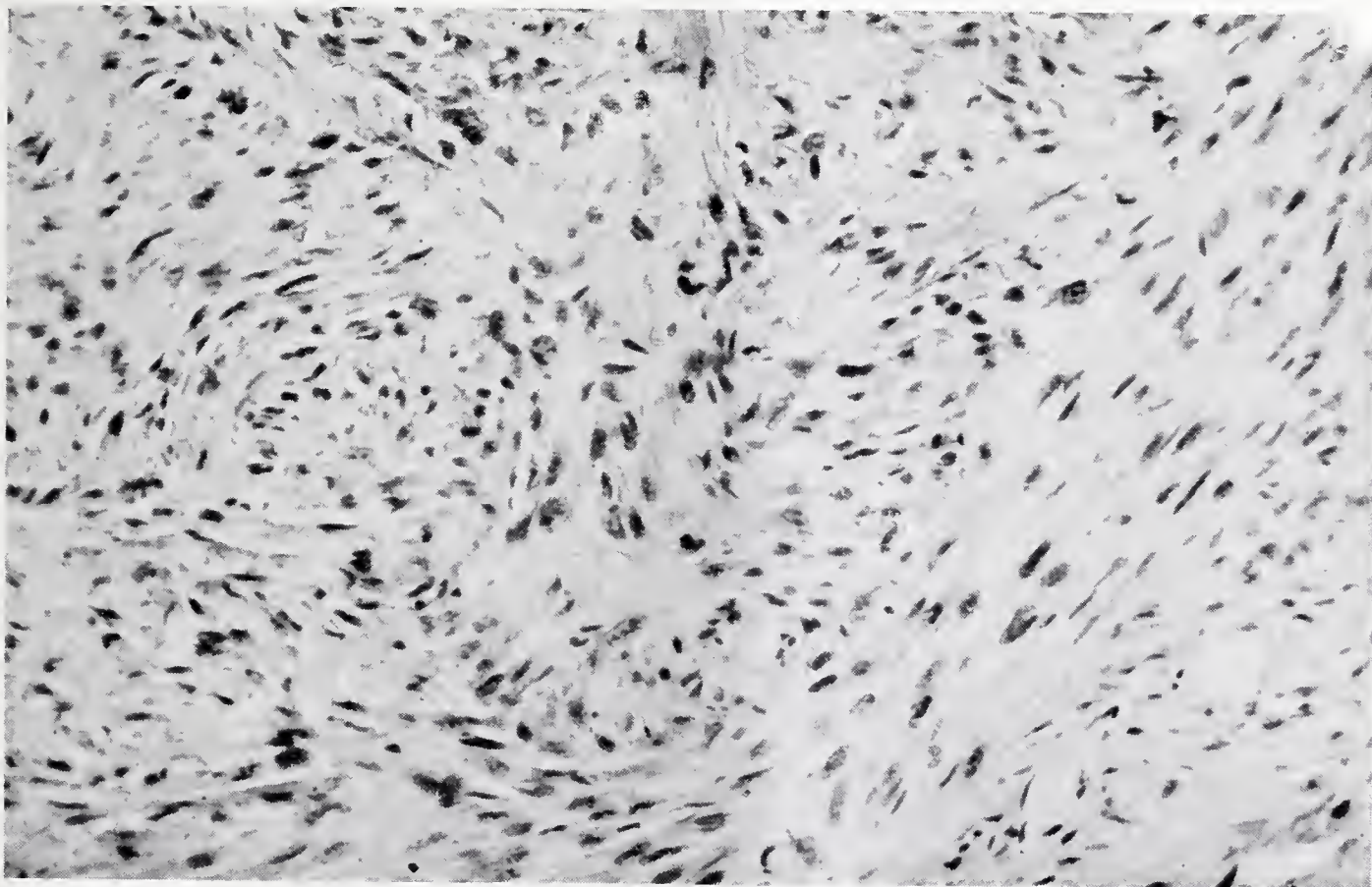


FIGURE 22
Spindle cell variety of squamous cell carcinoma.

lioma are *curettement and electrodesiccation, surgical excision, irradiation with x-ray or radium, and Mohs' chemosurgery.*

Although occasionally criticized by champions of other modalities of therapy, curettage combined with electrodesiccation is a widely used office procedure developed by those skilled in the dermatologic discipline. Recently the work of Knox and colleagues¹⁰ validated the effectiveness of this form of therapy in basal cell epithelioma compared to that of x-ray and scalpel surgery. When skillfully done in properly selected lesions, the results are excellent both in cure rate and cosmetic appearance. This is particularly true of lesions up to a centimeter in diameter and those located in areas where anatomical considerations present disadvantages for other methods. The details of curettage with electrodesiccation are clearly set forth by Pillsbury, Shelly and Kligman,¹¹ and should be meticulously followed.

Larger lesions are best treated by surgical excision with grafting when necessary, or by fractionated x-ray therapy. As a general rule, because of the additive effect from damage due to sunlight, we do not use x-ray therapy in younger patients, limiting this modality if possible to those over 50 years of age. After selecting the proper quality of x-rays, fractionation of the total dose to be given (usually 4,500R) into 9 to 15 treatments over a three week period, produces less permanent damage to the normal structures, and

a better cosmetic result while maintaining a very high tumor cure rate. Much less penetrating rays and lower total dosages are used in treating the superficial erythematous type, but they also respond well to curettage and electrodesiccation.

Morphea-like basal cell epithelioma is the most difficult type to treat. This is because it is usually diagnosed late in its course, and is so poorly demarcated that it is difficult to know when you have included all of the tumor in the treatment field. In our experience fractionated, deeply penetrating x-ray therapy is the treatment of choice in these lesions. Very wide surgical excision, usually requiring grafting, may be effective, but a better cosmetic result will be obtained from treatment with x-rays.

For those epitheliomas which are very large, frequently recurrent and of a highly destructive nature, and in which the usual modalities of therapy seem destined for failure, Mohs' chemosurgery technique is indicated. Its value centers around careful microscopic control of all tissue to be removed so that any unusual or silent extension of the tumor can be followed and removed with the minimum amount of destruction of normal tissue and the maximum of exact tumor location. Its disadvantages are the need for special training, special technical assistance, patient discomfort and daily therapy of from 3 to 10 days. The details of this technique are described in a monograph by Mohs,¹² and are too complicated to outline here. Many otherwise untreatable patients have been salvaged by this technique.

While most basal cell epitheliomas will manifest evidence of recurrence within two years if incompletely removed, an occasional late recurrence will be noted. Follow up examinations are an integral part of therapy and should continue for 3 to 5 years post-treatment.

SQUAMOUS CELL CARCINOMA: The literature supporting a relationship between squamous cell carcinoma and ultraviolet rays has been reviewed by Blum.¹³ The statistical study by Haenszel⁴ which showed a preponderance of squamous cell carcinomas to occur on the head, neck and upper extremities in males in the south and southwestern United States indicates that sun exposure is a primary etiological factor. The incidence for other sites was minimal in comparison. That many actinic keratoses will develop into squamous cell carcinomas if not treated is also prime evidence of the etiological importance



FIGURE 23

Keratoacanthoma. A benign lesion commonly confused with squamous cell carcinoma.

of chronic sun exposure.

Squamous cell carcinoma in its earliest stage may appear to be an actinic keratosis but with some infiltration noted on palpation. This thickening increases resulting in an elevated, often hyperkeratinized, pinkish papule or nodule. Its rate of growth may be quite slow but occasionally will be startlingly rapid. Central ulcerations occurs earlier than in basal cell epithelioma and when present gives a "rolled border" appearance to the lesion (Fig. 21). A verrucous or vegetative appearance may supervene, or the lesion may continue to be crateriform. Invasion of the deeper tissues occurs and lateral spread in a sub-surface fashion is not uncommon.

In contrast to basal cell epithelioma, squamous cell carcinoma has the ability to metastasize. Left untreated it will metastasize sooner or later, usually to the regional lymph nodes. Graham and Helwig¹⁴ emphasize that metastasis from squamous cell carcinomas arising in actinic keratoses rarely occurs. Certainly the probability of metastasis from small and relatively early lesions on the face is almost negligible, but larger ulcerated lesions are very dangerous in this respect.

Squamous cell carcinomas of the skin are derived from prickle cells of the epidermis. The tumor is composed of irregular masses of squamous cells proliferating downward into the dermis. These cells may be a mixture of differentiated squamous cells, keratinized cells and anaplastic squamous cells. The basal cell layer is lost and the squamous cells in the epidermis lack orientation toward maturity at the keratin layer. Cellular and nuclear size may vary and individual cell keratinization and formation of horn pearls are characteristic. A chronic inflammatory cellular response in and about the tumor masses is usually present. Figure 22 shows a spindle cell variety of squamous cell carcinoma which often is quite malignant.

As simple as it may seem, the diagnosis of this skin malignancy is not always easy, and biopsy should always be performed prior to, or at least at the time of, therapy. Other skin lesions commonly mistaken for squamous cell carcinoma are actinic keratosis, keratoacanthoma, pseudoepitheliomatous hyperplasia, basal cell epithelioma, bromoderma, fibrosarcoma and various cutaneous granulomas, particularly blastomycosis. The most common diagnostic confusion occurs with keratoacanthoma, a benign, rapidly growing tumor

probably of viral origin (Fig. 23). It is often difficult to differentiate the two lesions histopathologically and we tend to rely upon the history and clinical appearance rather than the histological interpretation. But when in doubt, one should err on the side of safety and treat the lesion as a squamous cell carcinoma. Szymanski¹⁵ has emphasized the distinguishing characteristics of these two entities.

The treatment of squamous cell carcinoma is primarily by means of scalpel surgery. However, for properly selected small lesions curettage combined with electrodesiccation produces an equally good five year cure rate, as pointed out by Knox.¹⁰ X-ray therapy for lesions of the head and neck produces excellent results and is particularly indicated in areas where scalpel surgery might necessarily be mutilating. A schedule of x-ray therapy such as outlined in the treatment of basal cell epithelioma is entirely satisfactory.

Continued education of the public in the use of protective clothing and adequate sun screening agents, if they must be exposed to sunshine for extended periods, will materially lessen the incidence of squamous cell carcinoma of the skin, as well as basal cell epithelioma and the other undesirable effects of chronic actinic irradiation.

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HYPOCHANDRIA

Pills of yellow, pink or blue
 Magic dixer of multi-hue
 Pills that lift me when I'm low
 Or laxatives when I can't "Go".

Pills for heart or head or gut;
 Potions for every kind of nut.
 Pills of every shape and size;
 Q. I. D. or when I rise.

Sweet Medics dole them out at random
 I gobble them with gay abandon;
 Each Doctor has his pet prescription.
 My drug bills are beyond description.

Wonder drugs when I'm infected;

Tranquilizers, if I'm dejected.
 Pills to clear that stuffy congestion;
 Chewy pills for poor digestion.

Pills for this—Pills for that
 Pills to slim or make me fat
 Sexy pills for lack of passion
 They say they are the latest fashion.

Who needs a maid? Besides I'm broke.
 Via "Pep" pills house work is a hell-of-a-joke.
 Insomnia? I never stew;
 There's a pill that lulls me P.D.Q.

No potted plants on my kitchen sills
 That's where I display my colorful pills.
 When pills are no longer my cup of tea
 Well, dear, there's always Psychiatry!



ELECTROCARDIOGRAM

OF THE MONTH

• • • • •

AGE: 23 SEX: M BUILD: Medium BLOOD PRESSURE: ?

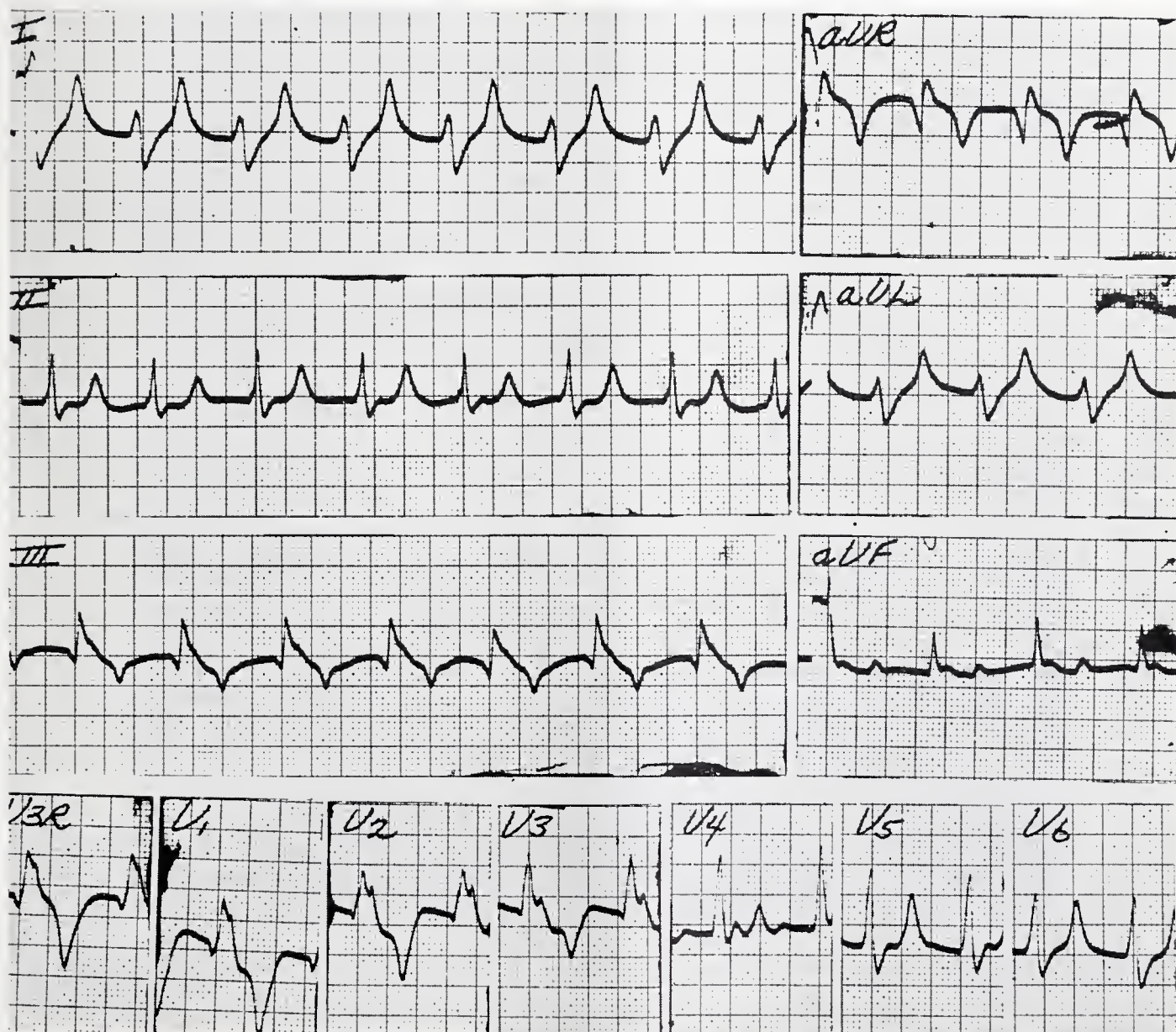
CARDIAC DIAGNOSIS: Pending

OTHER DIAGNOSES: Chronic Glomerulo Nephritis

MEDICATION: None

HISTORY:

ANSWER ON PAGE 131

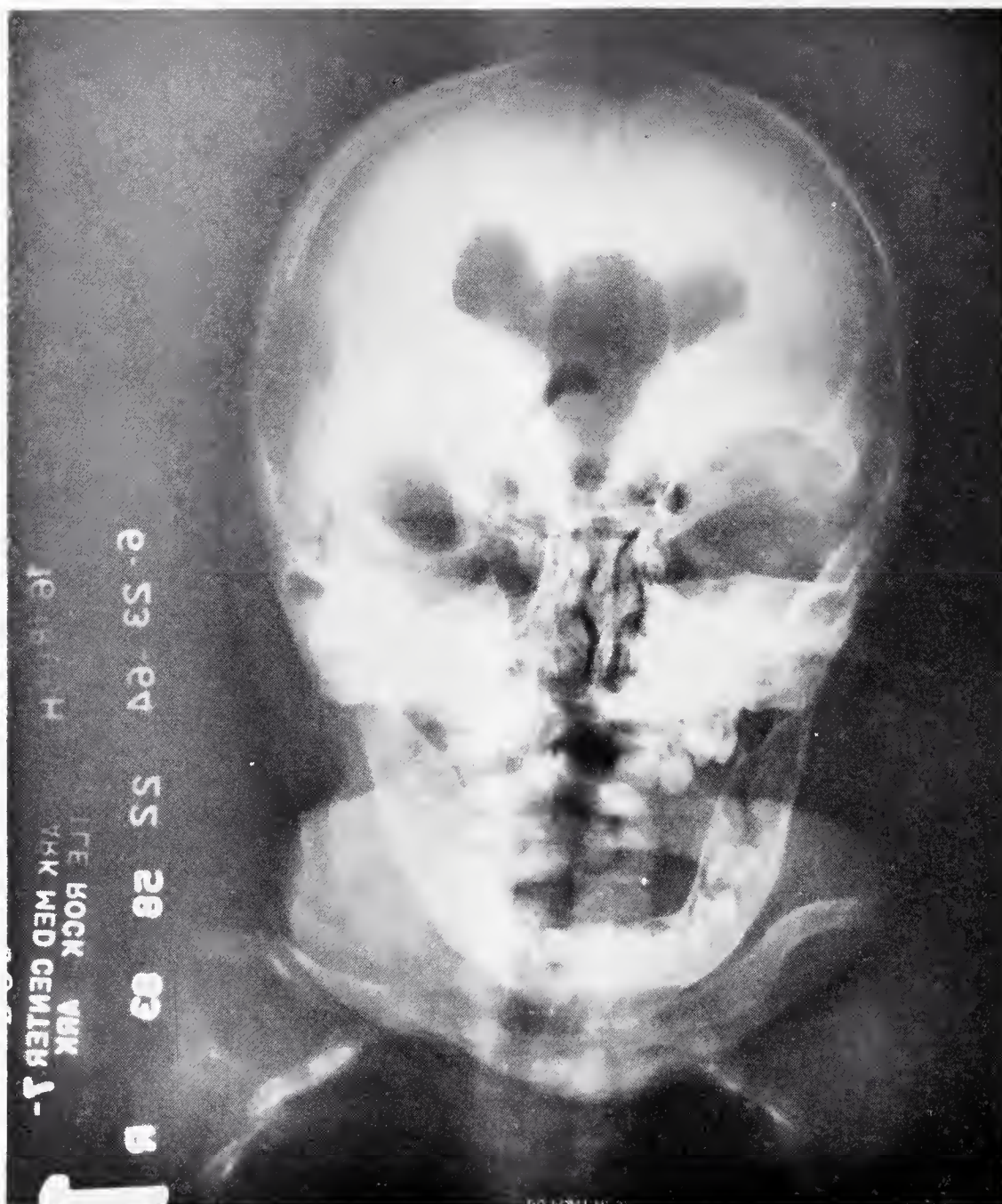


The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

ANSWER ON PAGE 131



22-58-83

6 month old male

HISTORY: This infant had repeated seizures since the age of 2 weeks. He was felt to be mentally retarded.

Hearing Measurement and Hearing Loss

Richard R. Hawkins, M.A.*

The State Health Department continually receives requests for printed matter relative to hearing loss, audiograms, educational management of hard-of-hearing children, etc. It is hoped this paper will serve to at least partially fill the need evidenced by these requests. Since the article will be read now, and perhaps later distributed in reprint form to medical and para-medical personnel some very basic information is included which will serve only as a review to many readers of this journal.

Hearing is customarily measured with pure tones (tones containing only a single frequency) produced by an audiometer and plotted on a chart called an audiogram. The audiogram is an "upside-down" graph with frequency along the horizontal axis (abscissa), and hearing level along the vertical axis (ordinate) (Fig. 1). Although the audible range of frequencies for the human ear extends from about 20 cycles per second (cps) to about 20,000 cps no practical information is gained by measuring a person's hearing above 8,000 cps or below 125 cps. Actually for most purposes one could limit his measurement even more to the frequencies between 500 cps and 4,000 cps since practically all the frequencies contained in speech fall between these limits.

Hearing level is plotted along the vertical axis of the graph between the limits of 0 and 110 decibels (dB). Zero hearing level represents the quietest sound which can be heard by the aver-

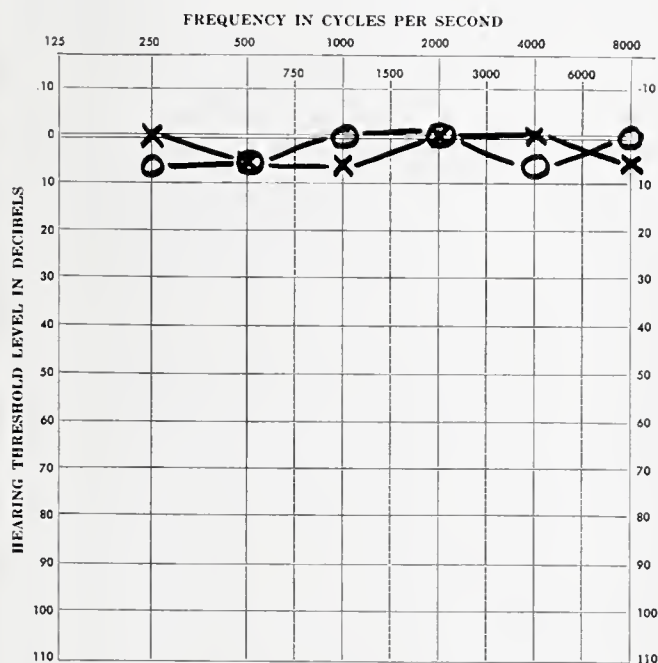


Figure 1. The pure tone audiogram of a person with normal hearing is shown. Frequency in cycles per second is plotted along the abscissa, and hearing level in decibels is plotted along the ordinate.

Legend			
	RIGHT (Red)	LEFT (Blue)	
AIR	○	×	
AIR (Masked)	△	□	
BONE	>	<	
BONE (Masked)	▷	◁	

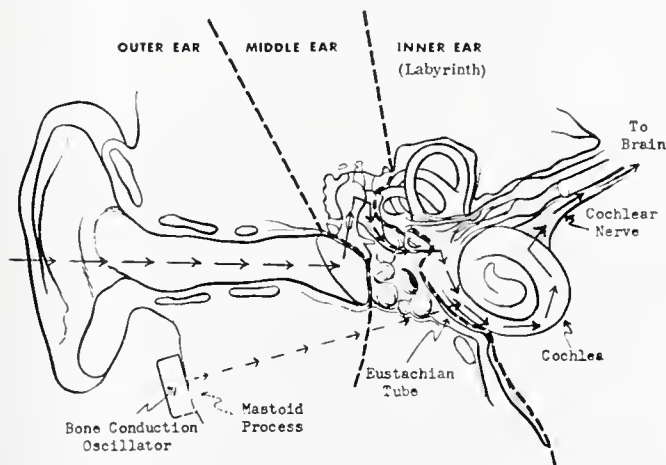


FIGURE 2
A schematic diagram showing the routes taken by air conduction (—→) and bone conduction (---→) when a pure tone audiometer test is administered. Note that the air conduction route passes through the outer, middle and inner ear, while the bone conduction route bypasses the outer and middle ear structures and tests only the inner ear and beyond.

*Audiologist, Children's Hearing and Speech Center, Maternal and Child Health Division, Arkansas State Board of Health.

age normal ear. One hundred ten decibels is near the threshold of sensation for most ears.

The object of an audiometer test is to find the intensity level at each frequency which is just barely audible to the patient. This by definition is his hearing threshold and when the thresholds at each frequency are recorded on the audiogram with standardized symbols this is the patient's threshold curve (Fig. 1).

Thresholds for the various pure tones are first obtained by air conduction, which means the sound is conducted through the air in the ear canal to the eardrum (Fig. 2). Note that the sound then passes through all parts of the hearing mechanism (that is, the outer, middle, and inner ear) and therefore an impairment at any level will be detected by the air conduction test. If hearing is normal by air conduction there is no need to proceed with further testing since each part of the hearing mechanism has been shown to be functioning properly. If, however, the air conduction thresholds are depressed one knows that an impairment of hearing exists but not where the site of lesion is. To help determine this the patient's thresholds must be obtained again using a route called bone conduction (see Fig. 2) which bypasses the outer and middle ear (conductive mechanism) and tests only the inner ear and beyond (sensori-

neural mechanism). These bone conduction thresholds are then recorded on the audiogram and their relationship to the air conduction thresholds noted. When the bone conduction thresholds are essentially the same as the air conduction thresholds (not more than 10 dB different) the problem is obviously with the sensori-neural mechanism (Fig. 3). In other words, when the air conducted tone passes through all sections of the ear (outer, middle, and inner) a certain degree of loss is found. When the tone is bone conducted and the outer and middle ear bypassed the problem must be in the cochlea or the retrocochlear pathways of hearing if the same amount of loss is found. This is called a sensori-neural (nerve) type of hearing loss.

When bypassing the conductive mechanism if bone conduction thresholds are found to be normal, this indicates the lesion is in the middle or outer ear and the loss is therefore called a conductive impairment (Fig. 4).

These two types of hearing loss are of course not mutually exclusive since a person can have at the same time a problem with both the conductive and sensori-neural mechanisms. In this case the patient would have some loss by bone conduction but a greater loss by air conduction. This type of problem is referred to as a mixed hearing

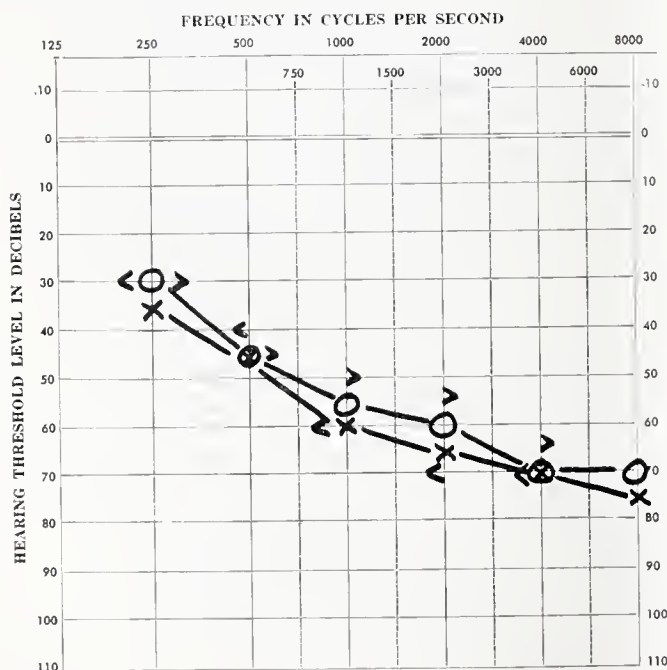


Figure 3. This audiogram shows a typical moderate sensori-neural (nerve) hearing loss bilaterally. Note that the loss by air conduction and bone conduction is essentially the same.

Legend			
	RIGHT (Red)	LEFT (Blue)	
AIR	○	×	
AIR (Masked)	△	□	
BONE	>	<	
BONE (Masked)	▷	◁	

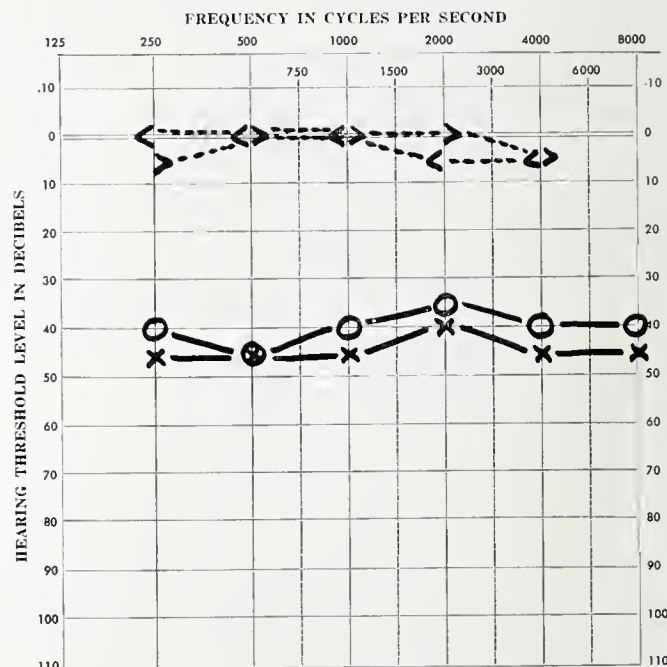


Figure 4. The person whose audiogram is shown above has a mild conductive hearing loss bilaterally. Note that thresholds for bone conduction (broken lines) are normal while thresholds for air conduction (solid lines) are depressed.

Legend			
	RIGHT (Red)	LEFT (Blue)	
AIR	○	×	
AIR (Masked)	△	□	
BONE	>	<	
BONE (Masked)	▷	◁	

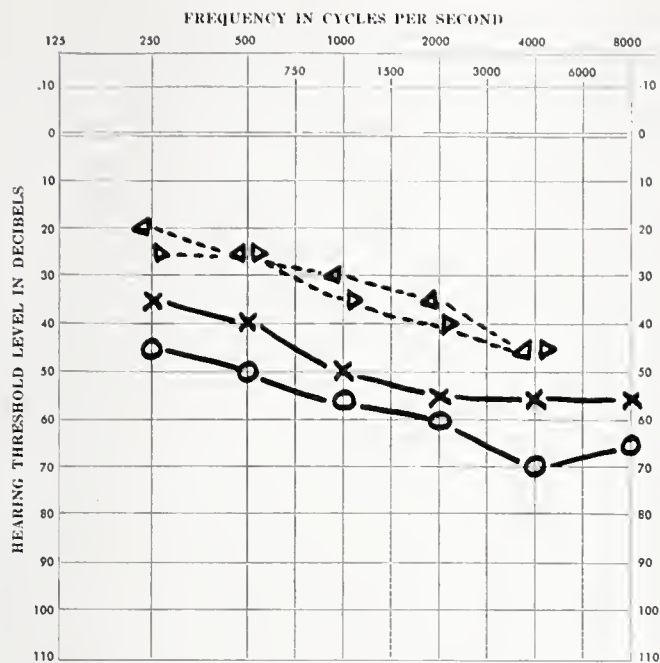


Figure 5. The above chart shows a typical moderate mixed hearing loss bilaterally. Note that the patient has some loss by bone conduction but a greater loss by air conduction.

Legend	
AIR	RIGHT (Red) ○ LEFT (Blue) ×
AIR (Masked)	△ □
BONE	> <
BONE (Masked)	▷ ◁

loss (Fig. 5).

ASA-1951 vs. ISO-1964 Standard. A word should be said here about a recent change which has taken place in audiometer standards. Because there were discrepancies between the sound pressure levels used by different countries of the world to represent normal hearing, the International Standards Organization in 1964 proposed a new standard based on extensive study and research. This standard has now been approved and adopted by the American Academy of Ophthalmology and Otolaryngology, the American Speech and Hearing Association, the American Acoustical Society, and many other professional organizations. Previously audiometers manufactured in the United States were calibrated to conform to the levels recommended by the American Standards Association in 1951. Now all new audiometers are calibrated to the new ISO-1964 Standard, and it is recommended that all old machines manufactured under the ASA-1951 Standard be returned to the factory for re-calibration. During the two or three year interim where audiometers with both standards will be used all audiograms should be clearly marked to designate which standard was employed.

Although the discrepancy between the ASA-1951 and the ISO-1964 standards is slightly differ-

ent at each frequency one can think of the new ISO-1964 Standard as causing a patient's hearing to appear on the average about 10 dB worse at all frequencies. In other words if a patient had an average pure tone hearing loss of 30 dB when tested under the ASA-1951 Standard, he would have about a 40 dB loss if tested with an audiometer calibrated to the ISO-1964 levels.

Degree of Hearing Loss. A person can of course have any degree of hearing loss ranging from slight to profound. For purposes of classification we can categorize hearing impairment into the following groups which are based on the average air conduction thresholds for the three middle frequencies (500, 1,000, and 2,000 cps).

1. Normal Hearing 0 to 15 dB
2. Slight Loss 15 to 25 dB
3. Mild Loss 25 to 45 dB
4. Moderate Loss 45 to 65 dB
5. Severe Loss 65 to 85 dB
6. Profound Loss (deaf) 85 to 110 dB

Although one should always exercise caution when classifying any person and make allowances for individual differences and exceptions to the rule, these categories can be helpful when properly used. The following generalizations can be stated about each group.

1. *Normal hearing* (0-15 dB) The person whose thresholds all fall within this range should have no difficulty hearing and understanding quiet speech.

2. *Slight Loss* (15-25 dB) A person with this amount of impairment will be able to hear and understand speech at normal conversational levels but he may have difficulty understanding quiet speech. If the loss is sensori-neural in type, he will have increased difficulty in noisy surroundings. A person with a conductive loss of this amount would probably understand slightly better in noisy surroundings since people tend to talk louder in the presence of noise. A few people with slight losses receive some benefit from a hearing aid but most hear and understand speech just about as well without amplification. Some people have this amount of loss without being aware of it, especially if their hearing has gradually waned as in the case of presbycusis (hearing loss due to aging). This degree of impairment might also go undetected in a small child.

A school child with this amount of loss should be placed near the front of the classroom to one side. His better ear should be toward the teacher

and the rest of the class if the loss is unilateral, and if there is a row of windows on one side of the room they should be to his back to facilitate lip-reading.

3. *Mild Loss* (25-45 dB) Most people with mild losses are likely candidates for hearing aids unless the problem is reversible, as most conductive losses of this degree would be. An individual with a sensori-neural loss of this amount could be expected to receive significant benefit from an aid although he could probably continue to "get by" without amplification.

The educational needs of a child with this degree of sensori-neural impairment can and should be met in the regular public schools. He will need preferential seating in the classroom following the same guides as stated for the child with a slight loss. He will understand speech better if he watches a speaker's face and supplements his hearing with lipreading. If the hearing loss is congenital he may have a slight speech problem characterized by imperfect production of many of the consonant sounds, especially if his hearing is poorer for the high frequencies.

4. *Moderate Loss* (45-65 dB) The person in this category is almost always a candidate for a hearing aid unless the loss is conductive, in which case it probably would be amenable to medical and/or surgical correction. The amount of help he will get from amplification will depend on several factors including the configuration of the pure tone threshold curves, the patient's ability to understand speech, his motivation and need to communicate, and his intelligence. With a properly selected and fitted hearing aid and a little special consideration by the classroom teacher a child with this degree of hearing loss should be able to succeed in the public school. He should not be expected to excel academically and may even need to repeat a grade or two, but if his intelligence and motivation are average or above he should be able to compete with his peers in most subjects. If this individual's problem is congenital and he does not have very early speech and hearing therapy with amplification, he will probably be late in developing speech. His speech, once developed, will most likely be deviant to some degree, anywhere from a slight sibilant sound distortion to a severe articulation disorder.

5. *Severe Loss* (65-85 dB) This category includes some people who will be able to function as hard-of-hearing individuals and some who will

function as deaf persons. The distinction between the terms "deaf" and "hard-of-hearing" is usually made on the basis of whether or not the person can hear and understand speech through hearing alone (without lipreading) with or without a hearing aid.

If this individual has above average intelligence, is highly motivated and was properly fitted with a hearing aid in his pre-school years he probably will succeed in the public school. There is no doubt that he will have difficulty but with proper management he can succeed. Some persons in this group, however, will have their educational needs best met in a school for deaf children where teachers have special training in managing this type of child.

Most persons with severe losses have a marked speech problem and some have speech which is barely intelligible. Their speech is always late in developing and, in fact, may not develop at all unless they receive special speech and language training very early. With rare exceptions all persons with severe losses should have a hearing aid. Their benefit from amplification may be limited but it may supplement their lipreading enough to help them understand speech much better than they would without an aid.

6. *Profound Loss* (85-110 dB) Individuals with a hearing loss of 85 dB average through the middle frequency range are usually classified as deaf. Almost all have some measurable and usable hearing although it may be only in the low frequency range (Fig. 6). A hearing aid will be of some benefit in almost every case in this group, especially if the aid is obtained for the child in the early preschool years. If the procuring of the aid is delayed until the child is in the later elementary grades his chances of accepting and using it diminish. The child may be benefited enough from amplification that he will be able to understand a few words through his aided hearing alone, but if the loss is much greater than 85 dB the assistance he gets from the aid may be limited to helping him hear a few of the low frequency vowel sounds in speech, and to aiding him in better controlling his own voice. Experience has taught us, however, that practically all deaf children receive some long range benefit from amplification, and whatever help they obtain is well worth the time, effort and money expended. The deaf person will develop speech only if he receives intensive, specialized instruction by a

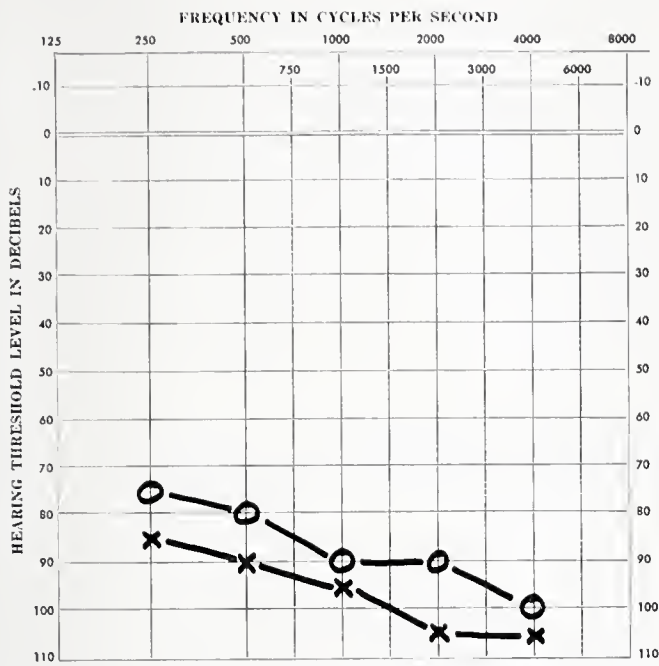


Figure 6. This audiogram illustrates the hearing of a person with a profound sensori-neural hearing loss who would be classified as "deaf." The hearing is usually better in the lower frequencies. Often there is no measurable hearing for the very high frequencies.

person trained in this area, such as a teacher of the deaf. His speech, at best, will be character-

ized by a "flat" monotone, and may be difficult for the average listener to understand. There is no lower age limit for putting a hearing aid on a deaf or hard-of-hearing child. As soon as it can be determined that there is enough hearing loss to warrant an aid, he can be introduced to amplification. Sometimes this can be accomplished below one year of age.

The total management of the hearing handicapped individual can best be accomplished through the cooperative efforts of many disciplines. No one person is adequately trained to supply all the patient's needs. The physician, audiologist, speech and hearing therapist, teacher of the deaf, public health nurse, hearing aid dealer, and others all have knowledge and skills to contribute. By appropriate interaction of these specialists the needs of the hard-of-hearing and deaf patient can be more adequately met. The State Health Department, through the Children's Hearing and Speech Center, stands ready at all times to help supply some of these needs.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Agenesis of the corpus callosum.

X-RAY FINDINGS: The lateral ventricles are separated and have rather pointed superior margins. The third ventricle is markedly dilated and extends dorsally between the lateral ventricles.

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE : 85 RHYTHM: Idioventricular Rhythm

PR: —sec. QRS: .17 sec. QT: .50 sec.

ABNORMAL: Very rare P wave can be identified. QRS regular in occurrence, prolonged duration. T waves slender, narrow based.

COMMENT: Changes characteristic of severe hyperkalemia.



EDITORIAL

GUEST EDITORIAL

University of Arkansas Medical Center

John A. Pierce, M.D.*

Ten years ago this month, the University of Arkansas Medical Center moved into new quarters. University Hospital was open for business and during the summer months the Medical School and Pharmacy School were readied for the fall matriculation.

The purposes of the Center have not changed during the past decade, nor have they been more succinctly or more eloquently stated since that day in the fall of 1956 when the building was officially dedicated. *To teach, to search, to serve.* This phrase has indeed become a motto during these vital years in the development of our schools. A dedication to excellence in all fields of endeavor has guided the expansion of Center operations. And the demand for additional training at the graduate level continues.

Real progress at any educational institution must be measured or at least reflected by people. The contrast with ten years ago is most sharply apparent in the full-time faculty (of the School of Medicine) which has increased from 72 to 142. The physicians-in-training (interns and residents) have also increased from 76 to 108. The medical school enrollment has shown a modest increase only from 336 to 360 but this is mainly a result of the rules governing admission. While the school presently accepts 105 freshmen students, the total number of applicants is well below the national and regional average, and many are not as well qualified as we would like. Thus, the number of students failing their freshman courses remains high. Actually we are currently admitting 10 students more than we did in 1956 but

our recent graduating classes are very nearly the same size as before. For example in 1957, the School of Medicine awarded degrees to 79 physicians; in 1961, to 82; and in 1965, to 80.

Actually the State of Arkansas produces 100 qualified medical students each year, but many of the excellent students leave the state to pursue their medical studies. Recently, a few of our prospective students have received generous scholarships at other medical schools in our region. We congratulate these excellent students on this recognition but at the same time we are having real difficulty filling the class positions that otherwise would have been theirs.

The restriction of admissions to residents of the State of Arkansas entails an extravagant expenditure of effort. The inclusion of a small number of well qualified non-resident students would do much to reduce this wasted motion. Federal support is now available for medical schools accepting non-resident students and our faculty plans to accept such students and support pending approval by the Board of Trustees and the State Legislature. Past experience indicates the probability that graduates of our medical school will practice in Arkansas, is approximately the same for "non-resident" graduates as for native Arkansans.

Experience with the class admitted in 1964 shows that of 19 students admitted from out-of-state colleges (all residents of Arkansas) their mean Medical Colleges Admission Test score was high and only 2 failed to achieve promotion to the sophomore class. Eighteen other students

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failed so that the enrollment now is 85 students of 105 admitted. There is thus little hope that the 1968 graduating class can exceed eighty physicians. The critical need for additional physicians will never be met if the size of the graduating class cannot be increased. There seems little reason to doubt that additional qualified students can be

recruited from out-of-state colleges. The tax payers of Arkansas can realize additional medical services on a continuing basis from perhaps half of the out-of-state students who successfully complete medical school in Arkansas. As a very practical matter, the plan to admit a small number of well-qualified out-of-state medical students is both financially sound and morally right.

MEDICINE IN THE



The Medical Education Foundation for Arkansas has received memorial contributions honoring the late Dr. W. H. Bruce of Pine Bluff as follows:

Jefferson County Medical Society, Pine Bluff
Dr. Thomas E. Townsend, Pine Bluff

The Foundation will apply the money toward the scholarship program for needy medical students.

On May 24th, 1966 the University of Arkansas Medical School received an Ampex 660B Video Tape Recorder. They are the first educational facility to utilize a video tape machine in our state's teaching program. They were also the first to utilize television as a teaching tool in the state.

THE MONTH IN WASHINGTON

Washington, D.C.—Administration officials say that the doctor-patient relationship should not be impaired under medicare.

Dr. Philip R. Lee, assistant secretary of health, education and welfare for health and scientific affairs, said in an interview that federal officials, in drafting medicare regulations, had been doing their utmost to insure that the traditional doctor-patient relationship is preserved.

"The guideline for the medicare program were developed with the close cooperation of so many physicians and other people in the health care field that this will provide the best assurance for

the physicians, for the government, for Congress and for the public that the implementation of medicare will not alter the fundamental and vital personal relationship between the doctor and the patient," Lee said.

"This was clearly the intent of Congress."

Lee termed the cooperation of physicians and hospital officials in developing medicare guidelines as "extraordinary." He said he personally expects the doctor-patient relationship to improve under medicare because removal to a large extent of the financing problem will give a physician more leeway in ordering laboratory tests and sending a patient to a hospital.

"Our most important concern in implementing the medicare program is education," Lee said. "The education extends to the doctor, the patient and administrators of the program."

Lee's office published a brochure for patients and another for doctors explaining what the medical insurance program does and doesn't do.

The Social Security Administration said that nine out of 10 of those 65 and over had enrolled in Plan B of medicare by the second signup deadline of midnight, May 31. The original deadline was extended for two months in an effort to get a reply from as many as possible of the 19.1 million aged persons eligible. More than 400,000 signed up during the two months, bringing the total to about 17.2 million. About one million said they didn't want Plan B coverage. Those who did not sign up this time will not have another oppor-

tunity until Oct. 1, 1967, and they then will have to pay at least 10 per cent higher premiums.

President Johnson invited about 200 physicians and hospital administrators to a White House meeting on June 15 "to examine problems that may arise and to discuss cooperative arrangements so that the (medicare) program will get off to a good start."

In addition to Johnson, speakers at the meeting included HEW Secretary John W. Gardner; HEW Undersecretary Wilbur J. Cohen; Lee; Surgeon General William H. Stewart; Social Security Commissioner Robert M. Ball, and Arthur E. Hess, director of medicare.

Social Security headquarters at Baltimore set up an around-the-clock medicare information service to help its district offices in responding to queries from, beneficiaries, physicians, hospital administrators and others.

* * *

The Defense Department has slashed by almost one-third — from 2,496 to 1,713 — its special draft call for physicians to be delivered to the armed forces this summer.

Under the revised doctor draft call, the Army will take 958, the Navy 405 and the Air Force 350.

The Pentagon said casualties in Southeast Asia had been fewer than expected and the number of volunteer physicians had exceeded estimates. In reducing the call by 783, the Defense Department pointed out it had originally issued its request to Selective Service last February. At that time it used best estimates available on the number of additional physicians who would be needed for the buildup of the armed forces in connection with the Viet Nam war.

* * *

The federal government will conduct a nationwide survey to determine factors that lead people, particularly older persons, to fall for fakes and swindles in the health field.

Seven agencies of the government are joining in the study which was recommended by the Senate Special Committee on Aging Subcommittee on Frauds and Misrepresentations Affecting the Elderly. The study will include various age groups beginning with teenagers, but it will focus on the elderly.

At hearings of the subcommittee, it was estimated that a billion dollars is wasted each year on misrepresented, unnecessary or worthless health products and services with a large share of

such spending by older persons, especially those suffering from chronic and incurable diseases.

There is general agreement among the government agencies involved that this waste of money may be greatly reduced if more knowledge is available about why people become victims of medical quackery.

The Food and Drug Administration is coordinating the study. Joining with FDA in the survey project are the Administration on Aging; National Institute of Child Health and Human Development; National Institute of Mental Health; and Vocational Rehabilitation Administration — all within the Department of Health, Education, and Welfare; the Agricultural Research Service of the U.S. Department of Agriculture, and the Veterans Administration. A number of voluntary health agencies, the American Medical Association and the National Better Business Bureau helped in planning the study.

The study will seek to determine the influence of such factors as family and educational background, folk medicine customs, and health experiences on consumer attitudes toward health products, services, and information. It will examine the extent to which such factors make some individuals prone to accept false and misleading promotions for health products and services, or resistant to sound medical and health information. Armed with such knowledge, the agencies hope to be able to devise more effective educational and other programs to protect the public against health frauds and quackery.

* * *

HEW Secretary John W. Gardner plans to reorganize the Public Health Service to give the Surgeon General more control over eight new divisions which would replace the present eight.

One of the new eight major divisions would be a National Institute of Mental Health which is now lumped under the National Institutes of Health. The new national institute will include the Fort Worth and Lexington Narcotics Hospitals and will "administer a unified program of research, manpower training, demonstrations and mental health services." Gardner said the institute will "serve as the principal focus for research and control programs in alcoholism and drug addiction."

The other seven new divisions would be the National Institutes of Health, the Bureau of Health Services, the Bureau of Health Manpower, the Bureau of Disease and Injury Prevention and

Control, the National Library of Medicine, the National Center for Health Statistics and Surgeon General's office.

Gardner also told a House Commerce Subcommittee that studies are underway to reorganize HEW into a Pentagon-type organization with a super-type secretary over three separate secretaries of Health, Education and Welfare. But he said, "now is not the time to act on those proposals."

Gardner's Public Health Service reorganization plan transfers to the secretary all functions of the Public Health Service, the Surgeon General and all other agencies in the service. Gardner called the present structure of the Public Health Service "obsolete." He pointed out it was unchanged since 1943 when the service had a budget of \$52 million compared to the present budget of \$2.4 billion.

* * *

Water pollution control activities of the federal government now are under the Interior Department.

The shift from the Department of Health, Education and Welfare became official when Congress didn't veto President Johnson's reorganization request for the move. Johnson predicted the federal government "now is better organized to carry out concerted action against the pollution that blights America's waters."

Interior Secretary Stewart Udall promptly issued guidelines to the states for setting water quality standards designed "to make rivers as clean as possible," instead of "as clean as permissible."

Udall outlined the department's goal as a federal-state approach to assure a national supply of clean water necessary for health and economic growth.

THINGS



**TO
COME**

September Session for Colorado Medical Society

A Golf Tournament, Stag Smoker and dinner-dance at the Broadmoor are the scheduled entertainment at the Colorado Medical Society's 96th

Annual Session to be held September 25-28. There are many other opportunities for entertainment both at the Broadmoor and in the area around Colorado Springs.

Balancing these will be three mornings of scientific section meetings. Specialty groups cooperating with the Medical Society in preparation of the program include the Academy of General Practice, the Society of Internal Medicine, Academy of Surgery, the Gynecological and Obstetrical Society, the Society of Clinical Pathologists, the Radiological Society and the Urological Society.



OBITUARY

Dr. William Paul Barron

Dr. W. P. Barron, 42-year-old Harrison pediatrician, died May 10, 1966, of a heart attack at his home. Of Scottish-Irish and English ancestry, Dr. Barron was born at Grant's Pass, Oregon, on July 25, 1923, the son of Walter Paul and Lena Frank Bower Barron. When he was three years old, the family moved to Jonesboro, then to Harrison in 1934. He graduated from Harrison high school in 1941. He attended the University of Arkansas in Fayetteville and the University of Arkansas School of Medicine from which he received his M.D. degree in 1947. He interned at the University of Arkansas Medical Center and became pediatric resident at that hospital, then transferred to Vanderbilt University Hospital, Nashville, Tennessee, as a pediatric resident. From 1950-54 he served in the U.S. Army Medical Corps, and since 1954 has been engaged in private pediatric practice at Harrison. He was past president of the Boone County Medical Society, and was Chief of Staff at the Boone County Hospital in 1962. His professional memberships included the Arkansas Medical Society, American Medical Association and the Boone County Medical Society; Fellow of the American Academy of Pediatrics; Licentiate, American Board of Pediatrics, and a member of Phi Beta Pi medical fraternity. He was a charter member of the Kiwanis Club, and served on the school board of Harrison. Dur-

ing the Korean War, he served in the U. S. Army Medical Corps with the rank of Captain, and was awarded the Bronze Star. He also received the oak leaf cluster for bravery under fire on Heart Break Ridge. A member of the First Presbyterian Church, he was serving as an Elder and on the Board of Deacons at the time of his death. He also was serving as assistant clinical professor of pediatrics at the University of Arkansas Medical School. Survivors include his widow, one son and one daughter, and his mother.

Dr. Van D. McAdams

Dr. V. D. McAdams, age 85, of Cord, died May 14th, 1966, in San Antonio, Texas. He was born near Calamine, Arkansas, and he attended the University of Tennessee Medical School, which was located at Chattanooga at that time, for two years. After the school was moved to Memphis he attended two more years. He began his practice at Cord and lived there for 35 years. He had served as president of the Independence County Medical Society, and was an honorary member of the Bayou Dots Lodge No. 126 F and AM. He is survived by one son.

Dr. Paul Ledbetter

Dr. Paul Ledbetter, 44, of Jonesboro died June 3, 1966. He was born in West Plains, Missouri, but moved to Jonesboro as a boy. He graduated from Jonesboro high school, attended Arkansas State College and graduated from the University of Arkansas Medical School. He interned at St. Paul's Hospital in Dallas and then served as a Captain in the Army Medical Corps. After his discharge from the Army, he returned to Jonesboro in 1948 and began practicing. He was a councilor of the Arkansas Medical Society, a member of Phi Chi Medical Fraternity, a member of the American Society of Gastro-Enterologists, served as president of the Craighead-Poinsett County Medical Society in 1962; a member of the Arkansas Medical Society; a member of the American Medical Association and on the staff of St. Bernard's Hospital. He was also a member of the Jonesboro Rotary Club and of the First Methodist Church. He is survived by his widow, three sons and one daughter.

Dr. Charles W. Dixon

Dr. C. W. Dixon, age 86, of Gould died June 12, 1966. He attended the Annunciation Acad-

emy in Pine Bluff and the Catholic Boys School in Marion County, Kentucky. He was graduated from the Louisville Medical School, Louisville, Kentucky, in 1905. He was a resident physician at St. Mary Elizabeth Hospital at Louisville. He practiced a short time at Pine Bluff before moving to Gould in 1923. He was a past president of the Lincoln County Medical Society and past vice president of the Arkansas Medical Society. He was a member of the American Academy of General Practice. He was one of the organizers of the Gould Lions Club. He received an award of achievement from Lions International in 1966. Dr. Dixon had been on the staff of Davis Hospital in Pine Bluff since 1920 and on the staff of Jefferson Hospital since 1960; he was a member of the St. Joseph Roman Catholic Church; he was a member of the Knights of Columbus. Dr. Dixon is survived by his widow and one son.



***Fecal Fat Excretion and Stool Color After Vagotomy and Pyloroplasty**

C. Wastell and H. Ellis (Westminster Hosp, London) *Brit Med J* 1:1194-1197 (May 14) 1966

A detailed study is presented of a group of patients submitted to total and to anterior selective vagotomy and pyloroplasty. Fecal fat excretion rose in nearly all patients after both procedures and in half of them to abnormal levels. Stool color was diminished after total vagotomy and pyloroplasty owing to the dilution of fecal pigment. A similar trend was noted after anterior selective vagotomy and pyloroplasty. Bowel frequency was usually increased in both procedures, but in a few cases there may be episodic increase in frequency or no change at all. Rarely, there is a decrease in bowel frequency after operation. In none of these quantities could any significant difference between anterior selective vagotomy and total vagotomy be demonstrated.



PERSONAL AND NEWS ITEMS

AAMA To Meet In St. Louis

Dr. Byron M. Stuart, president of the Missouri State Medical Association, will welcome representatives of nearly every state in the Union when some 600 medical profession's "Girls Friday" converge on St. Louis in October. The occasion will be the 10th Annual Meeting of the American Association of Medical Assistants, which will be held at the Chase-Park Plaza Hotel, October 19-23. The Missouri State Medical Secretaries and Assistants Society will be host for the event.

Among those expected to address the group or participate in the program are Dr. Charles L. Hudson, president of the American Medical Association; Dr. Phil Lee, Assistant Secretary to the Department of Health, Education and Welfare; Dr. James L. Goddard, Commissioner of Food and Drugs; and Mr. Bernard Harrison, AMA's Legal Department. The formal program is designed to further advance the knowledge and skill of the medical assistant in dealing with office problems. Workshops will offer training in leadership and professional organization work. Recreational activities have also been planned to precede and follow the formal convention program.

Mrs. Robbie Nichols of Stuttgart (McCracken Clinic) is president of the Arkansas State Medical Assistants Society and will attend the St. Louis meeting as one of Arkansas' official delegates. Mrs. Phyllis Haley of Texarkana (Southern Clinic) and Mrs. Mildred Ruck of Little Rock (Dr. H. F. Gray) will also serve as official delegates from the Arkansas State Medical Assistants Society. Mrs. Ruck is a candidate for the Board of Trustees of the AAMA.

Further information may be obtained from Mrs. Nichols or from: Miss Corrinne Hallquist, General Chairman of AAMA Convention, c/o Drs. Baumgarten and Charles, 5505 Delmar Boulevard, St. Louis, Missouri 63113.

Dr. King New Department Head

Dr. B. D. King, radiologist, formerly of Camden, is now Department Head of the X-Ray Department of Warner Brown Hospital in El Dorado, and is Co-Director with Dr. J. H. Pinson of the South Arkansas Tumor Clinic located in the hospital.

Dr. Norton Is Representative

Dr. Joseph A. Norton of Little Rock, president-elect of the Arkansas Medical Society, has been designated by the American Medical Association as the official AMA representative to the Second International Congress of Christian Physicians to be held in Oxford, England, July 11-15, 1966.

Dr. Brooksher Honored

During Commencement exercises for the University of Arkansas School of Medicine at the Robinson Auditorium in Little Rock on June 12, 1966, Dr. William R. Brooksher of Fort Smith received a "Distinguished Service Award" for his service to the school, the medical profession, and the people of the State.

Dr. Crow to Paragould

Dr. A. E. Andrews has left his practice in Paragould to begin three years residence training in radiology at the University of Tennessee medical unit in Memphis. Dr. Asa A. Crow, formerly of Cardwell, Missouri, has taken over Dr. Andrews' practice in Paragould.

Drs. Verser and Guenther Speak

Dr. Joe Verser of Harrisburg, secretary of the State Medical Board, and Dr. John Guenther of Mountain Home, a member of the Board, were speakers at the annual convention of The National Eclectic Medical Association held in Hot Springs in June.

Ark-Pac

A large percentage of Union County physicians subscribed over \$500 in signing up for membership in Ark-Pac in June.

Technologists Hold Meeting

The Arkansas Society of American Medical Technologists held their second quarterly state meeting in May at Lead Hill on Bull Shoals Lake. Dr. Joe Bill Wilson of Harrison spoke on "Drowning", and Dr. H. V. Kirby of Harrison spoke on "General Practice Yesterday and Today With Aid of the Laboratory" at the meeting.

Dr. Autry Gets Award

Dr. Daniel H. Autry of Little Rock received a "Distinguished Service Award" from the University of Arkansas School of Medicine in commencement exercises in June.

Resuscitation Committee Formed

Dr. Charles F. Wilkins, Jr. of Russellville has been named a vice chairman of a Cardiopulmonary Resuscitation Committee being formed by the Arkansas Heart Association. Appointed chairman was Dr. Robert Allen, cardiovascular surgeon of Little Rock. Another vice chairman appointed was Dr. James Doherty, chief of medical research at the Veterans Administration Hospital in Little Rock.

Medicine and Religion Assembly Held

An assembly on medicine and religion, sponsored by the Arkansas Medical Society, was held June 2 at the University Medical Center Auditorium. Physicians participating in the program were Dr. William Orr, Dr. Joe Norton, Dr. M. J. Kilbury, Jr., Dr. Fred Henker, Dr. Thomas Wortham, Dr. Stewart Allen, Dr. Sam Thompson and Dr. Carl Wenger.

Dr. Brightwell Accepts Award

Dr. R. J. Brightwell, district medical health officer, accepted an award made to Washington County Health Unit by the Arkansas Public Health Association for the best scrapbook.

Dr. Flannigan Opens Office

Dr. Thomas Flannigan has announced the opening of an office in Melbourne for the practice of General medicine and surgery. The office is located in the Iard County Memorial Hospital. Dr. Flannigan is a graduate of the University of Arkansas School of Medicine.

Dr. Robins Is Speaker

Dr. R. B. Robins of Chicago, Illinois, formerly of Camden, spoke at a meeting of the Camden Rotary Club in May. He discussed new trends in medical education.

Award Goes to Dr. Rosenbaum

A "Distinguished Service Award" was presented to Dr. Carl A. Rosenbaum of Little Rock by the University of Arkansas School of Medicine at the 1966 commencement exercises in June.

Dr. Gordon Receives Grants

Dr. Vida Gordon, director of the pediatrics allergy clinic at the University of Arkansas Medical Center, has received three grants totaling \$11,922 for expanded research and training in allergic responses. Dr. Gordon, who formerly was in private pediatric practice at Little Rock, is an associate professor of pediatrics and microbiology at the Medical Center. She created the Pediatric

Allergy Research Fund in 1964 to which the grants were made. Two of the grants were from private individuals and the third was from a pharmaceutical firm.

Dr. Colyar Returns to Rison

Dr. W. O. Colyar, Jr., who practiced medicine in Rison in 1960-1961 prior to service in the U.S. Air Force, has returned to Rison to practice. He is a graduate of the University of Arkansas Medical School.

Storm Whaley Addresses Convention

Storm Whaley, vice president of the University of Arkansas, in charge of medical service at the University Medical Center, addressed the opening session of the Arkansas Public Health Association convention at Hot Springs in May.

Dr. DePalma Awarded

Dr. Anthony DePalma, plastic surgeon from Fayetteville, received a certificate of commendation from the National Association for Mental Health in recognition for services given as a volunteer in the fight against mental illness and the advancement of mental health.

Medicare Workshop Held

Approximately 700 Arkansas medical personnel attended a two-day Medicare workshop sponsored by the Arkansas Medical Society and the Arkansas Hospital Association held in Hot Springs in May.

New Clinic for Dr. Taylor

Dr. G. Wayne Taylor of Leachville has opened a new medical clinic on Main Street in Leachville.

Norton Family Receives Award

The Dr. Joseph A. Norton family of Little Rock has received the Family of the Year award from the Urban League of Greater Little Rock.

Dr. DePalma Is Speaker

Dr. Anthony DePalma of Fayetteville spoke at a meeting at the Adult Center in Fayetteville in May. His topic was "Scope of Plastic Surgery".

Possible New Residency Program

Exploratory talks were held in May regarding the possibility of a medical residency program which would enable respiratory specialists in the University of Arkansas Medical Center's residency program to train at McRae Sanatorium. Members of the board of the McRae Sanatorium and officials of the Medical Center and State Health Department held the discussion.

Dr. Dobson Joins Clinic

Dr. Jack T. Dobson has joined Dr. Don G.

Howard and Dr. H. Scott McMahan in the practice of medicine at the Howard-McMahan Clinic in Fordyce. Dr. Dobson is a graduate of the University of Arkansas Medical School.

Dr. Scurlock Is Diplomate

Dr. William R. Scurlock of El Dorado has been named a diplomate of the American Board of Surgery.

Dr. Robins Donates Books, Equipment

Dr. R. B. Robins of Chicago, Illinois, formerly of Camden, has given his collection of biology books and periodicals and his personal laboratory equipment to Ouachita Baptist University.

Dr. McCray's Son Is M.D.

David S. McCray, son of Dr. Raymond McCray of Malvern, received his M.D. degree from the University of Arkansas Medical Center in June.

Dr. Robinson Participates

Dr. G. Allen Robinson of Harrison participated in the second annual convention of the Arkansas Society of Oral Surgeons held in Harrison in June.

Medical, Dental and Pharmaceutical Meeting Held

Dr. R. Frank Bryant of Pine Bluff has been elected president elect of the Arkansas Medical, Dental and Pharmaceutical Association at the association's meeting at Hot Springs in June. Dr. U.S. Reed of Pine Bluff assumed duties as president; Dr. Raymond Miller of Little Rock, first vice president; Dr. T. J. Collier of Hot Springs, executive secretary, Dr. H. S. Bagsby of Pine Bluff, assistant executive secretary; and Dr. C. A. Lawlah of Pine Bluff, treasurer. Speakers at the meeting included Dr. W. G. Klugh, Jr., Dr. John W. Trieschmann, Dr. W. R. Springer, Jr., and Dr. William R. Johnson, all of Hot Springs. Service awards were presented to: Dr. T. J. Collier of Hot Springs, Dr. C. A. Lawlah of Pine Bluff, Dr. R. C. Lewis of Camden, and Dr. Carl Hyman of Pine Bluff.

RESOLUTIONS

WHEREAS, ill health has forced the early retirement of Dr. Louis Hundley from the medical and civic duties which he performed so loyally, and

WHEREAS, Dr. Hundley has been an active member of the Arkansas State and Jefferson County Medical Societies and the American Medical Association, having served as President of both the Jefferson County and Arkansas State Medical Societies, and

WHEREAS, Dr. Hundley has served the community of Pine Bluff through its school board, his church and numerous other civic organizations, and

WHEREAS, Dr. Hundley's retirement will create a void in the medical and civic communities of our city, county and state,

THEREFORE, BE IT RESOLVED that we the members of the Jefferson County Medical Society honor Dr. Hundley and ourselves by granting him life membership in this organization.

BE IT FURTHER RESOLVED, that this Resolution be recorded in the Minutes of the Jefferson County Medical Society and a copy sent to the Journal of the Arkansas Medical Society in recognition of Dr. Hundley's meritorious service.

R. D. Dickins, M.D., President
Michael Ellis, M.D., Secretary



NEW MEMBERS

DR. LACY PARKER FRAISER is a new member of Pulaski County Medical Society. A native of Memphis, Tennessee, he received his preliminary education from Little Rock Junior College and from Millsaps College in Jackson, Mississippi. He received his M.D. degree from the University of Arkansas School of Medicine in 1961 and he interned at the University of Arkansas Medical Center. His specialty is urology and he is presently an instructor in urology at the University of Arkansas School of Medicine and he is in private practice with the Bradburn-Black Urology Clinic in Little Rock.

A new member of Pulaski County Medical Society is DR. C. DUDLEY RODGERS, JR. He

was born at Little Rock and he received his pre-med from Washington and Lee University in Lexington, Virginia. In 1960 he received his M.D. degree from the University of Arkansas School of Medicine and he interned at Kansas University Medical Center in Kansas City, Kansas. Dr. Rodgers' specialty is obstetrics-gynecology and his office address is 500 South University in Little Rock.

DR. DALE DILDY BRIGGS is a new member of Pulaski County Medical Society. He is a native of Little Rock and he received his preliminary education from the University of Arkansas and from Little Rock University. He was graduated from the University of Arkansas School of Medicine in 1963 and he interned at the University of Arkansas Medical Center. Dr. Briggs' specialty is pediatrics and his office address is 500 South University, Little Rock.

A new member of Pulaski County Medical Society is DR. LLOYD ROLLAN WARFORD, a native of Malvern, Arkansas. He obtained his pre-med from Henderson State Teachers College in Arkadelphia and he received his M.D. degree from the University of Arkansas School of Medicine in 1961. He interned at the University of Arkansas Medical Center. Dr. Warford's address is 6213 Lee Avenue in Little Rock. His specialty is pediatric hematology.

Cross County Medical Society announces that DR. JOHN HOSEA YOUNG is a new member. He was born at Marianna, Arkansas, and he received his preliminary education from Arkansas A&M and from Little Rock University. In 1963 he received his M.D. degree from the University of Arkansas School of Medicine and he interned at Arkansas Baptist Hospital in Little Rock. Dr. Young is now associated with the Price-Hayes Clinic at Wynne, Arkansas. He is a general practitioner.



TEA HONORS MRS. LONG

Mrs. C. C. Long of Ozark, who is currently serving as vice president of the Woman's Auxiliary

to the American Medical Association, was honored with a tea during the annual convention of the Woman's Auxiliary to the Mississippi State Medical Association. The tea was held in the Governor's Mansion with Mississippi's first lady, Mrs. Paul Johnson, welcoming guests. In the receiving line with Mrs. Johnson and Mrs. Long were officers of the Mississippi Auxiliary.

New officers of the Woman's Auxiliary to the MSMA were installed by Mrs. Long at a luncheon climaxing the convention.

CORRECTION

The list of deceased members of the Woman's Auxiliary to the Arkansas Medical Society published in the June 1966 issue of the Journal of the Arkansas Medical Society included the name of Mrs. Leonard R. Bogaev of Jonesboro. We are happy to report that this is an error and that Mrs. Bogaev is very much alive and in excellent health.



PROCEEDINGS OF SOCIETIES

Union

The Union County Medical Society met in May at El Dorado for a program concerning means of simplifying billing processes under the new Medicare program. Dr. Ben White of Houston, Texas was a guest speaker. Also in attendance were Dr. L. A. Whittaker, president of the Arkansas Medical Society; Dr. C. Lewis Hyatt, immediate past president of the Arkansas Medical Society, and Mr. Paul C. Schaefer, Executive Vice President of the Arkansas Medical Society.

THE
JOURNAL
OF THE
Arkansas MEDICAL
SOCIETY

September, 1966

Vol. 63 No. 4

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Reappraisal of a Small County Medical Society Tumor Clinic in Light of the De Bakey Program*

Wm. B. Harrell, M.D.,¹ R. Lee Thompson, M.P.H.,² and Patsy H. Wade³

Texarkana

WITH COMMENTS BY

Michael E. DeBakey, M.D.⁴

Houston, Texas

Eighteen years of experience have proven that a small, county medical society tumor clinic can render a unique and valuable service to the community and area where it is located. The key to success in this clinic has been the cooperation of the medical profession in the area. That half of the practitioners of medicine in the area participate in the program is one of the measures of its success. Despite this creditable past performance, we realize that innovations through federal legislation will alter the operation of this program in a fundamental way. At this point of transition, it seems prudent to evaluate the past operation of the clinic and to forecast changes that are impending.

The Bowie-Miller Counties Medical Society Tumor Clinic was organized in Texarkana, Arkansas-Texas to treat cancer in the indigent. This purpose was to be fulfilled through early detection, treatment, maintenance of continuous medical histories, and follow-up. The program was designed to improve our management of cancer by treating it as a group problem. Improvement of medical histories has been of benefit to the individual patient, of course, and has produced years of data which adds to the cumulative knowledge of cancer.

The Tumor Clinic was organized in 1947 under the auspices of the Bowie-Miller Counties Medical Society. During the first five years of operation, the Tumor Clinic was housed in the Bowie County Health Unit building. The local chapters of the American Cancer Society petitioned their respective state organizations for operating funds. At the suggestion of the Arkansas State Cancer Commission, the Clinic adopted a formal constitution and by-laws in 1955. Although many of the staff members were general practitioners, a sufficient number of specialists participated in the program to obtain approval from the American College of Surgeons.

In 1954 the Clinic was moved to St. Michael's Hospital because the American College of Surgeons ruled that all approved Tumor Clinics should operate in conjunction with a hospital accredited by the Joint Commission on Hospital Accreditation. St. Michael's Hospital later established a general practice residency in which the Tumor Clinic played an essential role.¹

From its inception the Bowie-Miller Counties Tumor Clinic has served a relatively wide geographical area. The total number of patients seen in the period 1947-1965 was 4,702. Of this number, 3,733 cases were from Arkansas, representing 79.4%, while 934 cases were from Texas, or 19.8%. Thirty-five (35) cases, approximately .5%, were from other states. Bowie and Miller Counties accounted for 1,700 of the patients seen, or 36% of the total. It became apparent that the majority of patients would be from Arkansas, since the State of Arkansas made funds available

*Read in part at Magnolia, Arkansas Lions Club, March 15, 1966, under auspices of the Arkansas Medical Society Speaker's Bureau.

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²Assistant Administrator, St. Michael's Hospital, Texarkana, Arkansas.

³Secretary, Bowie-Miller Counties Medical Society Tumor Clinic, Texarkana, Arkansas-Texas.

⁴Chairman, President's Commission on Heart Disease, Cancer and Stroke.

for the treatment and care of indigent cancer patients by providing hospitalization and domiciliary care, while Texas did not. (Table I)

Table I
Bowie-Miller Counties Tumor Clinic
Patients by Residence 1947-1965

TEXAS

Bowie County	766
Other Counties	168
Total	934

ARKANSAS

Miller County	934
Other Counties	2,799
Total	3,733

OTHER STATES	35
Total	35
Grand Total	4,702

The geographical area in which the Clinic is located has a predominately agricultural economy. The patients are either from rural or small urban areas. The largest urbanized area is Texarkana with a population of 55,000. The livelihood of the patients is either agricultural or commercial, and relatively few are employed in industry. These ecological conditions should be considered in analyzing the record of incidence and site of cancer. We may assume that many patients are engaged in outdoor occupations, while few are exposed to air pollution and related hazards associated with industry and large cities. This may account for the high incidence of skin cancer and low incidence of lung cancer.

From the origin of the Clinic, patients have been referred either by a family physician or by a staff member. If a family physician makes the referral, the patient is assigned to a staff member by strict rotation from an alphabetical roster maintained by the Clinic. If a staff member sends an indigent patient to the Clinic, that patient is considered to be assigned to the referring staff member if he so desires. In staff conferences we have always attempted to have present a general surgeon, gynecologist and radiologist. Pathologists, dermatologists, or other specialists are consulted as the need arises. All specialties are represented on the staff.

Most patients prefer to be treated locally, and the Tumor Clinic Staff is qualified to treat nearly all of the cases.² However, an occasional patient is referred to a large cancer treatment center such as the M. D. Anderson Hospital in Houston, or the University Medical Center in Little Rock, depending upon the state in which the patient resides.³ The prevalent opinion of the staff members has been that our facilities and personnel do not justify the routine performance of radical cancer surgery. Radiation therapy is planned and administered jointly by a radiologist and another specialist. General practitioners qualified in surgery have been assigned patients in the same order as board-qualified specialists and, of course, some members of the staff do general practice who have had specialty training.

Foremost among the problems of operating the Clinic has been financing. The first funds for indigent patients were made available through the Arkansas State Cancer Commission and the Arkansas State Department of Public Welfare. The local chapter of the American Cancer Society has furnished volunteer workers from time to time and, later, furnished a trained fulltime worker to operate an Information Center in conjunction with the Clinic.

Although these measures represent the best effort of the contributing agency, the Clinic has always operated under the handicap of inadequate funds. Of course, staff members contribute their time to the Clinic.

The hospital has borne the burden of out-of-pocket expenditures. Not only has space been provided for the Clinic, but radiology, laboratory, anesthesiology, and other services as well. St. Michael's Hospital has expended approximately \$5,000.00 per year to cover these costs and for the hospitalization of these indigent cancer patients.

Table II shows part of the contribution by St. Michael's Hospital to the Tumor Clinic program. Since 1960 the number of admissions and hospital days has been relatively constant. The average number of hospital days in 1960 was 8.9, while in 1965 this figure was 8.0 days. The trend shown by these figures permits the conclusion that the burden of hospitalization will not diminish appreciably.

Miss Patsy H. Wade, Tumor Clinic Secretary, has completed a statistical evaluation from 1958 through 1965. This study updates a report made in 1958 by Doctor William B. Harrell of the first

Table II
Tumor Clinic Patients Hospitalized at
St. Michael's Hospital, Texarkana, Arkansas
1958-1965

Year	Admissions	Hospital Days
1958	99	701
1959	103	860
1960	63	563
1961	61	433
1962	62	413
1963	54	402
1964	43	327
1965	62	501
Total	547	4,200

Table III
New Cancer Cases by Method
of Diagnosis 1947-1965

Period	Cases		Path.		Proven Clinical Diag.	
	No.	Yr. Avg.	No.	Yr. Avg.	No.	Yr. Avg.
1947-1957	612	61.2	484	48.4	128	12.8
1958-1965	652	81.9	511	63.9	141	17.6
Total	1,264	70.2	995	55.3	269	14.9

ten (10) years of the Clinic's operation.

Table III gives the new cancer cases diagnosed by the Tumor Clinic during the past eighteen (18) years. A comparison is drawn between the first ten (10) years of operation and the last eight (8) years. Clearly, the number of new cases diagnosed each year has risen during the more recent period. The average number of new cases per year during the total life of the clinic was 81.9. In addition, a strong increase was shown in the number of pathologically proven cases—from 48.4 cases per year during the first ten (10) years to 63.9 per year during the subsequent eight (8) years. The year breakdown of new cases is given in Table IV. A slightly diminished trend in new cases can be seen during the past four (4) years.

Table V gives the proven cases of cancer by site during the eighteen (18) year operation of the clinic. Cancer of the breast and the genito-urinary system account for almost 53 percent of the cancer in women, while malignant neoplasm

of the skin accounts for nearly 30 percent of the cases. Cancer of the skin accounts for 61.4 percent of the cases in males. It should be noted that cancer of the respiratory system has a relatively low incidence, which may be attributed to the ecological conditions noted above.

Table IV
New Cancer Cases by Year and
Method of Diagnosis 1958-1965

YEAR	CASES	Pathological Proven	Other Diagnosis
1958	106	92	14
1959	100	71	29
1960	90	67	23
1961	110	90	20
1962	58	42	16
1963	69	51	18
1964	54	46	8
1965	65	52	13
Total	652	511	141

To summarize the past eighteen (18) years of the Bowie-Miller Counties Medical Society Tumor Clinic, we think we can claim to have developed a sound, efficient program from modest beginnings. Our experience has demonstrated that local Tumor Clinics are both feasible and provide a valuable service to community health.

Table V
Cancer Cases by Site 1947-1965

SITE	Male	Female
Buccal Cavity and Pharynx	37	31
Digestive Organs and Peritoneum	65	51
Respiratory System	49	41
Breast and Genito-Urinary Organs	59	484
Neoplasm of Skin	377	272
Lymphatics and Haematopoietic Tissues	12	12
Other Sites	15	25
*TOTAL	614	916

*Includes metastatic cancer and multiple lesions.

Despite the problems, the Clinic could continue in its present organization. However, Public Law 89-239 passed by Congress in 1965—commonly termed the “DeBakey Program”—forces us to re-appraise our function in the future.⁴ The question facing the Clinic is simply one phase of the question facing the entire profession of medicine.

Part of the DeBakey Program directly affects the operation of our Clinic. In one sense, the Bowie-Miller Tumor Clinic might be considered a pilot program for the DeBakey concept; in another sense, the proposed program will fundamentally alter our operation. In brief, the DeBakey Program will provide funds to establish regional strategic clinics for heart, stroke, and cancer patients. These clinics will be established in University teaching centers and will have facilities and teams in cardiac surgery and cobalt radiation, as well as in other fields. In addition to these strategic clinics, stations will be established in larger, local hospitals. The purpose of these local stations will be to diagnose, to treat such cases as their facilities will permit, and to refer patients to the strategic clinics. The entire system may be compared to the triage system devised by the armed services.

Two underlying assumptions support the program. First, it is assumed that modern medicine must adopt the idea of the specialized hospital, analogous to specialization by individual doctors. Extensive facilities and specialty teams are cited as the advantages of these regional strategic clinics. Second, it is assumed that only through such federal programs can the poor be assured the highest quality of medical care.

Funds for the DeBakey Program will come from the Department of Health, Education and Welfare through the U.S. Public Health Service. At the level of the local station, funds will be available to support the workers in the local stations. These persons will be responsible for keeping medical histories, for directing a program of public information, and for administering the system of referrals to the strategic clinics. In addition, funds will be directly available to the local hospital in which the clinics are located to defray expenses of maintaining the clinic and to pay for such treatment as is administered at that level. The funding of the problem at the local level is, of course, the critical problem which has faced our own Tumor Clinic across the years.

The question next arises how the transition is

to be made from the program of clinics approved by the American College of Surgeons to the DeBakey Program. Steps have been taken to ease this change. Doctors from chapters of the American College of Surgeons have been appointed to provide liaison with the DeBakey Program, as well as any other such program. These persons will help to establish the DeBakey Program locally. You will be interested to know that these liaison persons have already met in Houston and have been briefed on the operation of the program and on the anticipated problems. It only remains to establish the machinery for administering the program.

The development of the regionalization program for mobilization of cancer teams at state and local levels was initiated in 1961 by R. Lee Clark, M.D., then Chairman of the Committee, and Ashbel C. Williams, M.D. This program was implemented by section chiefs and state liaison fellows.⁵

A last word should be said regarding the individual practitioner's attitude toward these new programs. In our opinion, the DeBakey Program may have a more far-reaching effect on the practice of medicine in America than Medicare. There is much discussion about the course that medical legislative history is taking. Regardless of personal opinions, the question is how we shall face the change. An objective appraisal of the future of the Bowie-Miller Tumor Clinic prompts the following conclusion. Our operation has realized its initial purposes: early detection, treatment, keeping medical histories, and follow-up. We predict that in light of the new program, the functions of diagnosis and referral will greatly increase in importance, and that the function of local treatment will decrease. The maintenance of medical records in those cases will undoubtedly be centralized and pertinent data maintained on Computers.

The American College of Surgeons statement on the DeBakey Committee Report was as follows:

“There are certain types of advanced medical educational programs of an expensive and complex nature which may best be financed, along with research, by the Federal Government. Programs in operation, such as the cancer program of the American College of Surgeons, now in its fourth decade, could be strengthened by additional federal support.

"Any program financed by the Federal Government for education and research should have the benefit of consultation and advice of practicing surgeons and other physicians both at the local and at the national level."⁶

On a wider view, we can anticipate that university and research centers will assume increasing importance in modern medicine. Of course, the idea of specialized hospitals and teams of specialists simply continues a trend already established. This trend also applies to the fact that the hospital is becoming the center of health care, rather than the doctor's office. The changes that are anticipated in the Bowie-Miller Counties Tumor Clinic are a part of deep social and cultural changes, as well as changes in the practice of medicine. We must intelligently and effectively adapt our program to these changes.

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COMMENTS BY DOCTOR DEBAKEY

"At the request of the authors, I have read the manuscript entitled 'Reappraisal of a Small Medical Society Tumor Clinic in Light of the DeBakey Program'. I appreciated their thoughtfulness in sending it to me for comment, and I enjoyed reading it very much.

"I would like to say that I think your approach to the matter is a most intelligent and healthy one, and I feel sure you will find that you will be able to adapt to these developments in a very good way."

MICHAEL E. DEBAKEY, M.D.



The Small Intestine in Skin Diseases

L. Fry (London Hosp, London), S. Shuster, and R. M. H. McMinn; *Arch Derm* 93:647-653 (June) 1966

Small intestinal biopsy was performed in 32 patients with skin disease. Sixteen patients had eczematous dermatitis, three had psoriasis, ten had inherited ichthyotic conditions, and three had acrodermatitis enteropathica. One patient with eczematous dermatitis had a flat mucosa, and there was some improvement in his skin condition with a gluten-free diet. Three of four patients with atopic dermatitis and two of three patients with psoriasis had eosinophilic infiltration of the intestinal mucosa. A deficiency of succinic dehydrogenase was found in the mucosa of five of the ten patients with ichthyotic conditions and in the untreated patients with acrodermatitis enteropathica. This deficiency was not found in one patient who was treated.

Immigration: A New Social Factor in Obstetrics

S. L. Barron and M. P. Vessey (16 Woodcroft, London) *Brit Med J* 1:1189-1193 (May 14) 1966

The case records of 6,000 consecutive deliveries from 1958 to 1960 at Lambeth Hospital, London, were studied with special reference to the obstetric behavior of immigrants from Ireland and the British West Indies. The established effects of age, parity and social class on obstetric behavior were demonstrated with each national group. In comparison with the British or the Irish the West Indians had only one third the incidence of pre-eclamptic toxemia, a shorter second stage of labor, a lower forceps delivery rate, a higher incidence of intact perineum after delivery, and a higher incidence of breast feeding at the time of discharge from hospital. The mean birth weight of babies born to West Indian mothers was 0.20 lb. less than to British and 0.33 lb. less than to Irish mothers.

The Image Obstacle Between Clergy and Physicians*

Reverend William Fogleman**

To introduce this report, let me borrow a few observations from a medical man, Dr. William P. Williamson, Professor of Surgery (Neurosurgery), University of Kansas School of Medicine:

"We are gathered here today in a symposium to blend together the efforts of the two professions most interested in the healing of the sick. Traditionally, each has had within it divisive stresses. We are well aware of the different basic religions today, and that the Catholic, Protestant, and Jewish Faiths each have different orders, denominations, or divisions; not always is there full understanding or cooperation between these various groups!

"Likewise, there is internal conflict within the medical profession — the town and gown bickering between academic physicians and those in private practice; the general practitioners versus the specialists; the medical men decrying the surgeons; the professional jealousy of one hospital staff against the other; the feud between the M.D.s and the Osteopaths.

"And in the past, there has been unfortunately a great void between the physician and the clergy, mostly due to a lack of communication and understanding. These petty feelings of resentment can be best illustrated by two or three stories, one of which relates an occasion on which Oliver Wendell Holmes, a famous physician, was stopped in the hospital corridor by a somewhat disturbed clergyman who said: 'Dr. Holmes, I have just seen your patient, Mrs. Jones, who is my parishoner, who is dreadfully ill. She looks terrible. As a matter of fact, I think she is going to die!' Dr. Holmes frowned, looked coldly at the minister, and then said, 'You might be right, Reverend, and if she does, she will go straight to hell!' The minister was shocked, and cried, 'Why, Dr. Holmes, how can you say such a thing?' 'Well,' said Dr. Holmes, 'I have just as much right to a theological prognosis as you do to a medical one!'

"An equally acid comment was once made by Dr. Arthur Hertzler, author of 'The Horse and Buggy Doctor'. He said, 'Preachers are always talking about places they've never been

and about people they have never seen!'

"The reverse direction of hostile feelings is exemplified by an experience related to me by a pastor whose parishoner had been hospitalized because of severe bizarre chest pain, diagnosed as heart disease. During a pastoral call, the patient confessed to his minister his anxiety and guilt over an illicit affair. Skilled pastoral counseling and assurance of God's forgiveness produced a dramatic cure of the chest pains. Naturally, the physician was not told of either the affair or the confession, and I fully understand the minister's resentment when he told me not only did the doctor take the credit for curing the disease, but also he charged the patient \$100.00."

So, it seems the obvious place to begin — The Image Obstacle Between Physicians and Clergy. Unless we can begin where we are, where we will end is in real doubt.

We believe it is the place to begin any serious dialogue. Some of us, only a few in the state, have been involved in clergy-medicine consultations. One was held in Austin, Texas, under the sponsorship of the Hogg Foundation for Mental Health, University of Texas. Another at the University of Kansas Medical School in cooperation with the A.M.A.

Both rather assumed good faith, understanding and mutual acceptance between our two callings, but *is this so?* The purpose of this report is to probe that question. Of the questionnaires sent over the state to clergymen and doctors, 891 of them were returned. Since I had to tabulate them, I rather wish you and your colleagues hadn't been so responsive.

What did they say? Let us begin. Medical men were asked to give five adjectives they thought fit clergymen in the mass. Men in general practice, by far the largest group in the medical community making reply, gave this sort of response—

When these adjectives were ranked "good" and "bad", approximately three-fourths of the adjectives were good. The most common "good" adjectives in rank order were: Sincere, dedicated, kind, honest, helpful, industrious, hard worker, friendly, understanding, and devoted.

A second less prominent grouping of "good" descriptive words are: Trustworthy, cooperative, compassionate and articulate.

*Presented to the Assembly on Medicine and Religion, June 2, 1966, University of Arkansas Medical Center, Little Rock, Arkansas.

**Pastor, Second Presbyterian Church, Little Rock, Arkansas.

A few doctors noted more dynamic roles of clergymen: such as arbitrators, marital judges, good listeners and community builders.

In all, 113 distinct adjectives were used to describe the good or better aspects of the clergy they knew.

Ordinarily, face to face, medical men might be tempted from confronting the less complimentary aspects of clergy as they saw them.

But with an unsigned form available, a good many medical men gave vent to some definite negative feelings. Almost as many negative adjectives were used as positive, but the same adjectives were used less frequently.

For example, 23 medical men used the adjective "sincere", but only 3 used the adjective "lazy" and "opinionated". A few physicians replies were totally negative, although many more were totally positive and most were a mixture of good and bad.

A few of the totally negative replies from general practitioners were as follows:

"Dishonest beggars, meddlers, demanding, egotistical cheap skates (even made us pay for the stamp to return this form)".

Another, "Stereotyped, repetitious, overdressed, overfed, holier-than-thous".

One said rather pityingly: "I suppose it is the best way of life they've been able to find."

Bear in mind that a little more than one-fourth of the general practitioner's adjectives for clergy were negative.

A cluster of these responses of somewhat related nature provide some profile: Superficial, inadequate, pompous, nervous, tense, neurotic, unstable, overpatronizing, incompetent, meddling and evasive.

Another cluster may indicate some real difficulty with communication with clergymen, such as: Presumptuous, dictatorial, reserved, stuffy, rigid personality, doctrinaire, limited viewpoint, opinionated and over-bearing.

Another package of adjectives deals with the views of clergymen, such as:

"Drys", prohibitionists, political liberals, unrealistic in business and finances, social meddlers and give too much advice.

Some philosophical types among the G.P.'s gave longer answers which express a variety of views:

"Preachers are pleasant, plain, pious, cautious, cool characters"—

Or, "They are just normal businessmen fol-

lowing a profession of high ideals",

Or, "They are just looking for a better living like everybody else. They have an inordinate interest in worldly goods and are prone to the very ills they try to heal".

And one gentleman G.P. says only "I love 'em all!"

On the whole those who identified themselves as surgeons agreed with G.P.'s about the sincerity, honesty and understanding of the clergy.

But surgeons were statistically somewhat more critical—on the other hand no surgeon used "lazy" as did 3 G.P.'s, while 5 surgeons out of a small sample did use the term "overworked". Both groups had two persons who said clergy were underpaid.

Again, the cluster of negatives only will be noted, "naive, impractical, critical, conformists and aloof" led the list.

A sampling of longer comments were: "Need more realization of weakness and spiritual needs of average persons and are often over concerned with philosophy and business of religion to the exclusion of sincere personal relations, and with more than average psychosomatic overlay".

Psychiatrists were considerably more positive than all doctors in the adjectives used: "Confused, poorly trained, egotistical and intolerant" being negatively cited here, and a preponderance of good adjectives including "helpful and intelligent" cited most often.

Other responses tended to follow the general response patterns of G.P.'s.

In the light of these mostly positive patterns of appreciation, in spite of some very specific negative feelings, it is interesting to turn to one of the questions clergymen were asked, namely, "What five descriptive words or phrases do you believe doctors in general would use to describe clergymen in general?"

Here negative adjectives outnumber positive adjectives 3 to 1.

Seven clergymen believe M.D.'s think of clergymen as "dedicated, but more than twice that number believe M.D.'s think of clergy as meddlesome".

Positive adjectives are, in rank order of use, "Dedicated, sincere, intelligent, self-sacrificing, understanding".

A whole cluster of adjectives in the good column appear, which weren't in the M.D.'s replies at all: "comforter, counselor, teacher, prophet".

On the other hand a large number of clergy re-

plies indicate that they believe doctors feel that the clergy is a, to use a phrase from one form, "damned nuisance".

Listen to a sampling of these adjectives: "In the way, naive, troublesome, thoughtless, easily duped, irrelevant, backward, a necessary evil, not scientific, parasite, witch doctors, superstitious, unnecessary, shallow, and pestering nuts".

Apparently many clergymen feel that M.D.'s disapprove of and disagree with the views of the clergy. They feel M.D.'s believe they are "Difficult to tolerate, dull, poorly trained, not competent, and insignificant".

What do you make of the fact that M.D.'s, in spite of some real reservations about clergymen, nevertheless seem to think much more highly of the clergy than the clergy believes they do?

Virtually all doctors agreed that with few exceptions clergymen are not at all or very poorly trained and unable to deal adequately with mental illness, yet statistical studies show that more than 50% of cases of mental illness have as the first contact with the "helping profession", the minister.

Doctors, too, believe that clergymen have some real mistaken impressions about the practice of medicine. Here is a sampling of these responses:

"Too much confidence in medicine", "too much impatience with the M.D.'s poor church attendance," "feeling that M.D. is only a glorified plumber with interest in physical body alone", "clergymen seem not to realize that the practice of medicine consumes all waking hours and that the ill are cared for whether they can pay or not", "psychiatry and religion are not opposing forces and psychiatrists are not atheists", "that most medical problems are organic instead of psychosomatic today", "that all doctors are not evil sinners", "clergy feels that all cases of same illness are the same, they become amateur M.D.'s".

M.D.'s also fear that clergymen believe that:

"Physicians are too impersonal, hardened and unsympathetic" (commonly cited), "clergy demand and believe they deserve free care and even special attention", "that clergy are free to break hospital rules", "that clergy believe M.D.'s are really unsympathetic business men and that some medical procedures are unneeded", "that some clergy believe that M.D.'s omit the spiritual side of man and omit God from their practice".

Indeed, a good number of M.D.'s smart under the assumption that many clergy believe that

M.D.'s are all rich (incidentally, they are right). A large number of clergy indicated that "rich", "wealthy", or "eager for wealth" is a fair descriptive word to use of most doctors.

Clergymen appear to believe that competence as a physician is directly and positively related to his religious conviction.

Clergymen want doctors to divulge privileged confidential information about a patient just because the clergyman is the patient's minister.

That clergymen believe M.D.'s are "against them" (an assumption which is roughly corroborated by responses of clergymen).

Because we (M.D.'s) sometimes speak of disease lightly, they feel we (M.D.'s) lack pity. Because we see death so often they may feel we lack reverence.

That all office income is profit.

That any minister has a right to feel sorry for himself.

Certain ministers believe that they have medical knowledge granted by divine revelation.

Sect type clergymen (Faith Healers — Science Haters) and cold analytical autocratic impersonal M.D.'s seem to be the worst interpersonal problem for the other profession.

Believe big income and glamor is the whole story.

They expect me to "tithe".

Clergymen don't feel obligated to talk to M.D. about patient (clergy responses indicate that most don't feel it is wanted or appreciated).

One OB-GYN man feels that ministers still think (erroneously) that childbirth is full of pain and peril.

That all patients want and need long visits, thus they interfere with patient care in the mistaken notion they are helping with prayers and platitudes.

A resentment of the clergy's referring a person to a M.D. because clergyman only knows M.D.'s socially—cannot properly refer.

A feeling that chiropractors and other cultists are on same level as medical profession.

This catalog of particulars specifies where physicians feel some clergymen are misguided or misinformed concerning the medical profession.

By far statistically, money is mentioned by clergy as greatest item of misunderstanding with a surprising 42 references to it, while the physicians' attitude is the second most mentioned area

of misinformation with 29 references by responding clergy.

Well—how do clergymen conceive of M.D.'s. One of the questions of our survey asks the clergy to furnish 5 adjectives to describe M.D.'s.

A profile of adjectives in rank order of use is of interest: "Dedicated, overworked, busy, conservative, well-trained and efficient" were used positively.

Negatively, the related adjectives "rich, wealthy, materialistic, expensive, mercenary and prosperous" were used many times.

Another negative cluster has to do with the reception and attitude some clergy feel in relation to M.D.'s. Most used adjectives here were "Aloof, arrogant, self-centered, selfish egotists, distant, haughty and impenetrable".

About 70% of the adjectives used were "good"—30% "bad".

Some rather interesting observations by clergy related to physicians were offered in this category, including

"Ill equipped by training to live" and are "poorly read", "neglect their families", "mechanics", "old fashioned in theology", "cover up for incompetent doctors".

The whole distribution of "good" adjectives were of the "strong" variety, "industrious", "aggressive", "tireless", "wise", "strong", "disciplined", "efficient and able".

Let me try to summarize very tentatively—

One senses two professions each of which feels it definitely belongs and has a rightful place in society.

The clergyman is somewhat less confident of being accepted by doctors than the contrary and tends to be threatened by physicians and not at all sure of how well he will be received.

Doctors seem aloof to other than their own minister, to whom they seem friendly (often good friends), while clergymen seem to respect doctors other than those of their own parish, they nevertheless feel they probably are not respected in turn.

(i.e. doctors seem to respect ministers they know as pastor but to have reservations about the profession, while ministers respect the profession of

medicine almost without reservation but have considerable reservations about many individual doctors.)

Both professions have something of the feeling that the other (and to some extent their own, but less) has departed from earlier times of greater purity of purpose and motive (i.e. service).

Money, wealth and prosperity are a real obstacle. Many clergymen feel that M.D.'s are physicians the first half of their career and financiers the last half. Some doctors seem disturbed by similar ideas. Some "underpaid" clergymen feel that they are as well trained in their disciplines as M.D.'s.

There is sub-rosa, beneath the surface, a considerable amount of real hostility on the part of not inconsiderable number in each profession toward the other profession, communication in many cases being poor or absent.

Older ministers and M.D.'s and ministers and M.D.'s of "older main line" communions tend more to feel that all is fine and there is no problem. Younger men in both professions and men of "less-well-educated" clergy communions are more pessimistic.

A surprising number in both professions are not at all optimistic that clergy-M.D. relations can be improved. Many say it is too difficult and not worth the effort.

But not all is dark, for profound respect does exist between many clergy and physicians. *Their* relationship is beautifully expressed by clergyman Kelly Barnett, who says, "Across the patient's bed we face each other; you in your white coat, a stethoscope in your hand; I in my black coat, with a prayerbook in my hand. At the beginning, we were one, since the beginning we have always been together, unavoidably related; and when you are true to the oath of medicine, and I true to the ordination vows, the center of interest has been, is, and must always be in the man on the bed, your patient, my parishoner, God's creation. And if we work in unity together, the patient will come to see, to know, to love the Father God who through us, in us, by us, and *in spite* of us, remains the Ultimate One Who healeth all our diseases, and forgiveth all our iniquities".

Emission Spectra from Helical and Coiled Forms of Polyadenylic Acid¹

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The different results reported in recent studies of emission from polynucleotides^{1,2,3} probably reflect primarily differing emissions from molecules in different environments, even though some of the polynucleotides were also in different macromolecular conformations. In the present work we have used only water as a solvent in an attempt to measure separately the effect of conformation changes on absorption and emission. Since pH changes can modify polynucleotide conformations we have studied both phosphorescence and fluorescence from poly A* and the corresponding monomer AMP* in frozen aqueous solutions containing 0.25% glucose to enhance the formation of moderately transparent glasses at 77°K. The pH of the solutions prior to freezing was controlled in the range 3.5-7.0 with 0.1 M sodium acetate buffer. Absorption spectra were measured at 300°K with a Cary 15 recording spectrophotometer, and fluorescence and phosphorescence spectra on an Aminco spectrophosphorimeter. At 300°K, emission was observed only in AMP at pH <4.0, so that the emission measurements reported here were all made at 77°K.

The absorption and emission spectra of AMP are independent of pH from 5.0 to 7.0, but this is not the case for poly A. At pH 7.0, poly A is in the form of single-strand helix with stacked bases.⁴ With decreasing pH a hydrogen-bonded double-strand helix is formed^{5,6} and this change is accompanied by an increase in hypochromism of the absorption maximum and in hyperchromism on the long-wavelength side of the maximum. The deviations from the absorption spectrum of AMP are largest at pH 5.0. Thus, presumably our data at pH 7.0 and 5.0 are indicative of poly A in these two conformations.

At pH 7.0, the absorption maximum for poly

A at 39,060 cm⁻¹ is slightly blue shifted from the value of 38,610 cm⁻¹ for AMP; the maximum absorbancy of 37% lower than the maximum for AMP and a hyperchromism of almost 100% is observed at 34,500 cm⁻¹.

At pH 5.0 the absorption maximum of poly A is further blue shifted to 39,680 cm⁻¹; the maximum absorbancy is decreased additionally to a value of about 47% less than the peak in AMP and the absorbancy at 34,500 cm⁻¹ is four times that at the comparable wavelength in AMP. Decreasing the pH to 3.5 does not change the hypochromism of the main peak, but the absorbancy at 34,500 cm⁻¹ decreases again to approximately the value observed at pH 7.0.

The emission spectra observed at 77°K from AMP and poly A at both pH 5.0 and 7.0 are given in Figure 1. The structure characteristic of adenine phosphorescence⁷ is not found in poly A, and the two fluorescence maxima (at 31,250 and

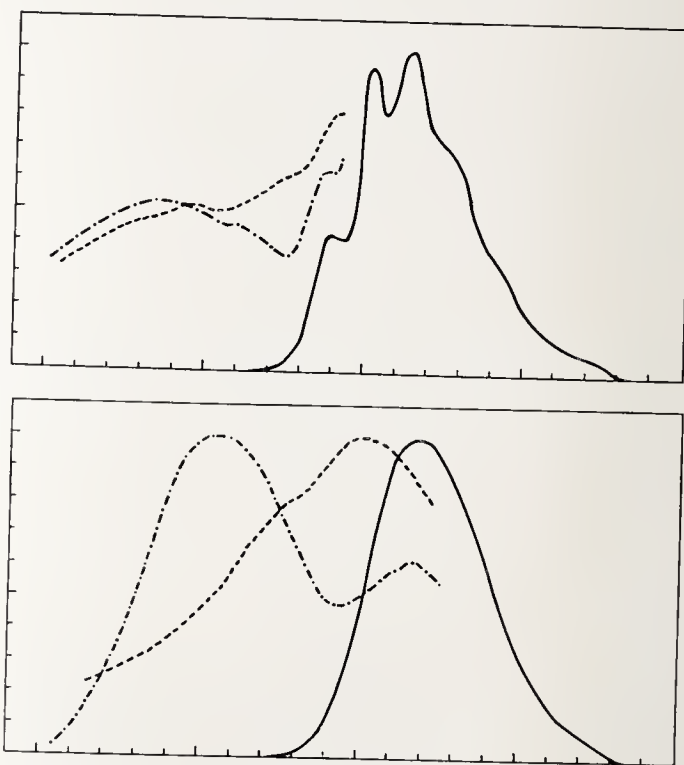


FIGURE 1a and 1b

The emission spectra from (a) AMP and (b) poly A in aqueous solutions containing 0.25% glucose frozen to 77°K. The total emission (fluorescence plus part of the phosphorescence spectrum) is shown by (a)—pH 3.5 and --- pH 5.0-7.0 and (b)—pH 5.0 and --- pH 7.0. The phosphorescence alone—given by the solid lines—is the same at all the pH's tested in both (a) and (b).

*Abbreviations: poly A, polyadenylic acid; AMP, adenosine monophosphate.

¹Presented in the Biophysics Seminar at the University of Arkansas Medical Center on June 21, 1965.

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28,600 cm^{-1}) for AMP merge into a single peak (at 29,800 cm^{-1}) in poly A at pH 7.0. This peak is then red shifted to about 27,500 cm^{-1} when the pH is decreased to 5.0. When compared with the lowest fluorescence band of AMP at pH 3.5, a small net red shift does exist in Poly A at pH range 5.0-3.5; however, the fluorescence and phosphorescence spectra are overlapping and an accurate estimation of the position of fluorescence maxima is not possible. Further, the intensity of both emissions from the polymer is considerably lower (about 10-15 times) than that from AMP under comparable conditions.

The decay of phosphorescence from AMP has a single exponential component with a lifetime of 2.5 sec.; this value is unchanged for pH 5.0-7.0.⁷ An exponential component of this lifetime is also observed in poly A, but in addition a much shorter-lived component of approximately 0.5 sec. is observed at pH 7.0 and is even more pronounced at pH 5.0.

Three conclusions can be drawn from the present results:

(a) The differences between both absorption and emission spectra for the polynucleotide and the corresponding monomer indicate that *in water*, interactions occur between constituent bases even in the single-strand helix without hydrogen bonds, or in the coiled form, and further, the interactions are even greater in hydrogen-bonded helical configurations (note particularly the phosphorescence decay rates).

(b) Using the formalism of molecular exciton theory,⁸ we have predicted the ways in which the spectra of the double-strand helical poly A should differ from those for AMP. These predictions are in good quantitative agreement with our observations. In our calculations we utilized transition moments computed for adenine by SCF methods⁹ and assumed the structure of double-strand helix proposed for poly A by Rich *et al.*⁵ Thus, in a coplanar, hydrogen-bonded pair of adenosines, the transition moments corresponding to the most intense $\Pi\text{-}\Pi^*$ transition should lie side-by-side (parallel). This should produce the observed hypochromism and blue shift of the absorption maximum at about 38,600 cm^{-1} . Similarly, the transition moments of the less intense, lowest energy $\Pi\text{-}\Pi^*$ transition⁷ should be again parallel, but nearly colinear, and the transition energy should be red-shifted by about 200 cm^{-1} ; this could account for the magnitude of the net red

shift in the fluorescence band and, together with the blue shift of the absorption maximum, may cause the observed hyperchromism at 34,500 cm^{-1} .

Interactions between neighboring base pairs will be lower since they are mutually displaced as a result of screw rotation along the helix by 90°.⁵ Although hyperchromism could arise also from changes in the $n\text{-}\Pi^*$ states, these do not appear to be the lowest-energy transitions in adenosine or in poly A.⁷

(c) Bersohn and Isenberg² reported that in 95% glycerol the phosphorescence spectrum for poly A is identical to that from AMP. Similar results were obtained by Rahn *et al.*³ for poly A in the mixture of water and ethylene glycol 1:1. This differs from our results and also from those of Douzou *et al.*¹ for poly A in aqueous media at pH 7.0. It was shown by Duggan¹⁰ that deoxyribonucleic acid as well as polynucleotides are completely denatured by 96 volume % glycerol or 72 volume % ethylene glycol. This helix-coil transition is due to the decrease and finally diminishing of hydrophobic interactions between bases in alcoholic media.¹¹ This indicates that the absence of structure in phosphorescence spectrum and the appearance of a short-lived component of phosphorescence decay for poly A in aqueous solutions are the consequence of interactions between the bases of polynucleotide chain.

Since these interactions are one from the most important forces holding the conformation of native deoxyribonucleic acid, the measurement of emission spectra in aqueous solutions will probably better reflect the properties of native and undisturbed nucleic acids.

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STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

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PYOMETRA

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INTRODUCTION

Pyometra is defined as a collection of pus within the uterus. Interference with the natural drainage of the normal and abnormal uterine fluids and retention of infected material in the uterine cavity has generally been regarded as an entity of rather infrequent occurrence. Though commonly related to carcinoma of the cervix or uterine corpus, pyometra may result from benign lesions of the cervix and uterus. It may provoke complications frequently undiagnosed and often of serious consequences to the patient.

HISTORICAL BACKGROUND

In discussing the relative merits of bleeding, purging, fomentations, and blistering in the treatment of acute hysteritis, De Wees (1901) credited John Clarke of London as the first to fully describe pyometra as a clinical entity (1812).

In 1880, Sir James Simpson quoted the 13th section of the Hippocratic writings as describing "the contracted cervical orifice which must be opened by means of bougies and leaden instruments releasing humors and bloody waste." The same Sir James then reported a case with Pyometra complicating carcinoma of the cervix and resulting in uterine rupture and peritonitis.

Mr. Cook (1811-1870), a practitioner in Warwick, described enlargement of the inner os of the womb with gentian root or prepared sponge and afterward by introduction of hollow instruments of silver, ivory, or horn to establish drainage for acute uterine catarrh.

Since these early reports, numerous terms have been applied to retained uterine secretions. As acute endometritis, acute metritis, suppurative uterine catarrh, hysteritis, and acute endometrial catarrh, pyometra was accorded many pages in the older treatises. Despite this lack of terminological uniformity, it is evident that the potential seriousness of pyometra was fully appreciated during this era. This disparity of terminology, however, makes a critical review of the literature difficult.

De Wees gave a succinct clinical description of pyometra. Clinical symptoms, complications such as uterine rupture with peritonitis and/or sepsis, and treatment by drainage and uterine irrigation with various medicinals were described. Dunning (1904) defined the same clinical entity in the postmenopausal patient as "senile endometritis."

Lomon (1912) in reviewing the literature quoted the incidence of pyometra as 3-10% in patients with carcinoma of the cervix. He also discussed cases, symptoms, classification, and pathology.

Around 1920 treatment of carcinoma of the cervix with radium and radiation became well established. Succeeding years produced a flurry of reports on the occurrence of pyometra. In 1923 Lammers reported pyometra following treatment of carcinoma with radium while Alamanni reported pyometra complicating untreated carcinoma of the cervix. In 1927, Easer reported the case of a 60 year old with carcinoma of the vagina, cervix, and uterus who was found to have a 2000 cc. pyometra at surgery. Reeb (1928) found a concretion or intrauterine stone blocking the cervical canal of a 77 year old who had had a D & C and

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radium for small myoma of the uterus 33 years previously.

One of the most comprehensive reports of this era was given by Bland in 1929. He reviewed the predisposing causes, pathology, clinical forms, and treatment of pyometra following radium therapy for uterine carcinoma.¹ He emphasized the fact that all cervixes with carcinoma were infected, that the predominant organism was the streptococcus, and hence, regarded pyometra as analogous to pyonephrosis "where the dominant character was not suppuration but retention with distention of the organ." He first described the two clinical forms of obstructed uterine drainage as complete versus incomplete, and noted that pyometra could occur without a completely occluded os or endocervical canal.

A case of physopyometra was reported by Hector in 1929, in a patient with myomata associated with adenocarcinoma of the corpus uteri. Falls reported a similar case of physopyometra with endometritis due to *welchii bacillus*.²

By 1930, Crossen and Crossen in their textbook *OPERATIVE GYNECOLOGY*, mentioned pyometra as a complication of uterine malignancy and discussed its treatment. In 1934 Curtis discussed the causes of pyometra.³ Many cases were attributed to carcinoma of the cervix or body of the uterus, but he emphasized that the majority were due to simple stricture as a result of senile atresia, operative procedures, or cautery.

In 1944, Gemill reported pyometra complicating pregnancy in the postpartum period.⁴ The large majority of reports during this period were related to pyometra occurring with malignancy of the uterus or uterine cervix. It was not uncommon in earlier reports, however, to have benign lesions of the uterine cervix and uterine corpus as etiologic factors in the production of pyometra.

In 1944, Bayard Carter reported a bacteriologic study of pyometra.⁵ This study was repeated in 1951 by Carter et al.⁶ In 1929, Melody gave an extensive review of the "obstructed uterine cervix" relating benign and malignant etiology, symptomatology, and classification.⁷

Henriksen published a series of three excellent articles beginning in 1939 on pyometra associated with the cervical stump, benign lesions of the uterine cervix and corpus, and malignant lesions of the uterus.^{8,9,10} His series presented the largest total number of cases of pyometra published. He emphasized the various etiologies of pyometra

and the hazards of untreated pyometra, and did much to bring pyometra as a clinical entity to the recognition of obstetricians and gynecologists.

Nevertheless, a review of textbooks of gynecology, radiology, and pathology, presents a stereotyped pattern of presentation allotting only a few lines to the management of pyometra as it occurs with carcinoma of the cervix or corpus uteri.

The potential seriousness of pyometra, well recognized in the pre-antibiotic era, is now rarely emphasized, frequently not mentioned, and usually limited to association with uterine malignancy.

MATERIAL

This study reviews fifty-two patients with the diagnosis of pyometra admitted to the University of Arkansas Medical Center during the fifteen year period 1950-64.

RESULTS

The patients' ages ranged from 22 to 80 years with an average of 59 years. Average parity was 3.7. Eleven patients were pre-menopausal.

Incidence:

These fifty-two patients represent 0.5% of the 11,341 gynecologic admissions during this period. No figures are available on the incidence of pyometra in the 91,448 gynecologic visits to the Out-Patient Department during this time.

Etiology:

Twenty-eight (54%) patients had uterine malignancy. Of this group, twenty-two cases were felt to have malignancy as the only etiologic factor. Four cases followed internal radiation therapy for uterine malignancy and two had carcinoma of the cervix with benign cervical polyps.

Twenty-four (46%) patients had pyometra associated with benign lesions only. These included: eleven with senile stenosis; four with inflammatory disease of the cervix or endometrium; five with prolapse of benign myoma or polyp; two after traumatic delivery; and two after operative procedures (one conization, one D & C).

Symptoms:

Predominant symptom was vaginal discharge in thirty-eight patients (73%). Other symptoms included, fever in twenty-two (42%); abdominal pain in eighteen (35%); and uterine enlargement in fifteen (30%).

The type of vaginal discharge was purulent in most patients but was serous or serosanguinous in a few.

Completeness of cervical occlusion was evaluated from symptoms; i.e. acute and persistent or

intermittent with intervals of well being. Using these criteria, twenty-nine patients were judged to have complete obstruction of uterine drainage. Twenty-three patients were classified as having incomplete cervical occlusion with pyometra.

Laboratory:

Papanicolaou smears were taken in thirty-five patients. Twenty-four were reported as positive and eleven were negative.

Twenty-eight patients had specimens submitted for cultures. Sterile cultures were noted in only five cases. The predominant organism in the twenty-three positive cultures obtained was staphylococcus in nine, coliform organism in six, streptococcus in four, candida albicans in two, enterococci in one, and diphtheroid in one.

DISCUSSION

Incidence:

Henriksen reported twenty-six cases occurring in 6,550 operative cases for an incidence of 0.45%. Our series showed an incidence of 0.5% in all gynecology admissions over a fifteen year period.

In all series reviewed, as well as our own, an overall incidence of pyometra could not be definitely established.

Etiology:

1. *Infection* produces obstruction of the cervical canal by edema or by healing and synechia formation. Many of these cases occur in the postmenopausal group. At this time the mucous membrane is thin and readily invaded by bacteria.

2. *Trauma*: Instrumentation, abortion, traumatic childbirth, and cervical cautery or surgery will produce obstruction by cicatrix. Patients in our series give vivid examples of this etiology.

Patient # 1183 68 had criminal abortion followed by temperature of 106° and evidence of sepsis. On examination, the cervix was narrow and barely admitted the uterine sound. A large amount of purulent material was drained.

Patient # A5 33 62 experienced traumatic breech extraction at home. One week postpartum, she had a fever of 106°, clinical evidence of sepsis was obvious. Dilation of the cervix produced 500 cc. of bloody pus. She subsequently improved and was discharged.

Patient #12 03 98 had myomectomy and polypectomy in August, 1956. One month later she reported lower abdominal discomfort with abdominal mass. Sounding and dilation of the cervix produced 150 cc. of purulent watery exudate.

Patient #171806 had polypectomy and D & C.

Ten weeks later she was seen because of abdominal pain. Insertion of a uterine sound through an occluded cervix released approximately 100 cc. of pus.

Patient #12 66 37 had D & C for postmenopausal bleeding. At six weeks examination she was found to have 50-60 cc. of bloody purulent exudate within the uterine cavity.

Other cases in the literature revealed pyometra occurring following Dührssen incisions, amputation of cervix, caustics, and stem pessaries.

3. Radium and X-ray:

Internal radium application is a frequent cause of pyometra. X-ray may also provide enough inflammatory response in the presence of cervical carcinoma or endocervix to conclude complete obstruction of the cervical canal. The time interval extends over a wide period and may occur rapidly and acutely or years later.

Patient #A6 71 92 was found to have carcinoma of the urethra and cervix. Treatment included needles and internal radium application on 11/1/56. She was seen three weeks later for copious, foul vaginal discharge and found to have a 60-70 cc. pyometra.

Patient #14 63 14 was treated by internal and external radiation for carcinoma of the cervix twelve years prior to occurrence of pyometra.

4. Neoplasms:

Brewer in his textbook of gynecology states that the presence of pyometra should suggest the possible existence of endometrial and endocervical carcinoma; because it is so often associated with these malignancies.¹¹ This point is emphasized throughout the literature. Thus pyometra has become synonymous with uterine malignancy. However, it is important to emphasize that carcinoma of the cervix more commonly predisposes to pyometra than endometrial carcinoma.

This general acceptance of pyometra as an uncommon clinical entity except in the presence of uterine malignancy may be erroneous. Our group of fifty-two patients showed an almost even distribution of pyometra appearing with benign and malignant lesions of the uterus and cervix uteri; 54% with malignancy and 46% with benign lesions.

Carter reported 133 cases in his bacteriologic review of which 71% were related to cancer.⁶

Henriksen has accumulated the largest series of pyometra from benign and malignant causes. From his series of three articles beginning in 1939,

he gives an overall incidence of 61% in association with malignancy.

Bland reported the incidence of pyometra complicating uterine malignancy as 0.5%. Others report an incidence of 3-10% including the incompletely occluded cervix and postirradiation of cervical carcinoma.

Our twenty-eight cases were derived from 820 cases of uterine malignancy; an incidence of 3.4%. One might conclude that pyometra does not occur in a high incidence of cases of carcinoma of the uterine cervix or corpus. This conclusion is not acceptable since our series includes only those cases treated as in-patients.

Henriksen found that pyometra in association with carcinoma of the uterus and uterine cervix definitely affected the course of the disease. He reviewed 208 cases of pyometra from the surgical and autopsy records of twenty-one hospitals. Pyometra was listed as a primary cause of death in sixty cases (24%). These included uterine rupture, ruptured pyosalpinx, perforation, thrombophlebitis, and sepsis. In untreated cases of carcinoma of the cervix with pyometra direct extension was impressive and rapid. Henriksen concluded that the variation in the course of the carcinoma was due to: encapsulated infected material as a potential source of local and generalized sepsis; higher incidence of thrombophlebitis; sudden spill of accumulated fluid by spontaneous rupture or perforation; and pain leading to malnourishment and cachexia with development of endometritis and myometritis.

It is important therefore that one recognize the alteration in the course of the disease whenever pyometra complicates either treated or untreated uterine malignancy. Unlike management in benign disease the treatment of pyometra in the presence of malignancy warrants a more radical approach. Fear of spreading disease is of second importance to establishment of adequate drainage.

Bacteriology:

Bland and others have emphasized the presence of bacterial contamination in cervical carcinoma. Matthews found 50% sterile culture with carcinoma of the cervix treated with radiation. None were sterile in cases of untreated carcinoma.

Bayard Carter has published the most extensive series reviewing bacteriology of pyometra, 133 cases.⁶ Negative cultures were obtained in twenty-one. Anaerobic organisms were cultured in forty-

nine cases, and mixed anaerobic and aerobic cultures were obtained in twenty-one cases. Total number of positive cultures was 112. Predominant organism was a streptococcus in a total of twenty-five positive cultures. Staphylococcus occurred in twelve cases, coliform group in seven, microbacterium tuberculosis in two, clostridium welchii in two, Brucella in one, fusospirochetal group, one. No death occurred in his series. Pyometra was most common in the post-irradiated patients with congenital malignancy. Carter emphasized the need for aerobic and anaerobic culture from specimens obtained in cases of pyometra. At the University of Arkansas Medical Center aerobic and anaerobic cultures have been carried out of all vaginal, cervical, and uterine specimens submitted since 1950.

Our series corroborated Carter's finding. Five of our twenty-eight cultures were negative and twenty-three were positive. The predominant organisms in both series were staphylococcus, coliform and streptococcus. It is important for one to remember that proper management and treatment of pyometra will be complemented by adequate bacteriological studies; that senile cervixes and those involved with carcinoma provide a ready entrance to invasion of bacteria which are commonly present within the vaginal canal; and that cultures should be carefully taken avoiding contamination from either skin or vagina.

Symptoms:

A word concerning symptomatology. Since Bland's classification of pyometra occurring with complete and incomplete occlusion of the cervical canal, two symptom complexes have arisen. The incomplete type is characterized by lower abdominal discomfort, vaginal discharge, and fever which is intermittently relieved when intra-uterine pressure effects release of the uterine contents. These symptoms reappear at irregular intervals. The complete type shows acute or chronic, persistent hypogastric pain of mild to moderate degree.

It was felt by Bland and other authors that pyometra probably occurred more frequently than reported due to the occurrence of pyometra in the incompletely occluded cervical or endocervical canal. The pathogenesis of pain accompanying pyometra is felt to be a type of uterine tenesmus or colic; described as "miniature labor". Distress ceases almost immediately after evacuation of the accumulated material.

Treatment:

It is important to remember that the treatment of pyometra is dilatation of the cervical canal; continued drainage; and antibiotic therapy as indicated by general patient response and culture. Dilatation and drainage is usually accomplished by uterine sound and cervical dilators. It may occasionally be necessary to resect a wedge of cervix to open the cervical canal after reflecting the bladder. Reports by Melody and others mention amputation of cervix and trachelorrhaphy to establish drainage.⁷ Hysterectomy may be indicated if drainage cannot be provided and the condition of the patient is good. Most reports are consistent with an abdominal approach.

More vigorous methods and manipulations are not without ill effects. Two patients had dilatation of the cervix and curettage. This procedure was followed by febrile postoperative courses in both cases and prolonged hospitalization. One had a uterine perforation and peritonitis. Seven patients had hysterectomy seven or more days following diagnosis of pyometra and establishment of drainage. All of these patients had uncomplicated postoperative courses. Three of these were radical hysterectomies. Three patients had hysterectomy in less than five days. All had febrile, septic postoperative courses with pelvic phlebitis, peritonitis, and pulmonary embolism as further complications.

Radium application is definitely contraindicated in the presence of pyometra. Radium application was carried out in three patients. None was successful due to temperature elevation of over 102° within 24 hours. Conversely, four internal radium applications were done two weeks after drainage without mishap. In every instance of radium application in the presence of pyometra, the pyometra was not diagnosed until the time of internal application of radium. Persistence in radium therapy in the face of pyometra can only lead to a higher morbidity and tends to offer an even more detrimental effect upon prog-

nosis of the malignancy.

SUMMARY

Fifty-two patients with diagnoses of pyometra admitted to the University of Arkansas Medical Center during a fifteen year period were reviewed with respect to incidence, etiology, symptoms, and laboratory studies.

CONCLUSIONS

1. The incidence of pyometra in 11,341 gynecology admissions was 0.5%.
2. An almost even distribution between malignant and benign lesions was noted.
3. Bacteriologic studies revealed positive cultures in twenty-three of twenty-eight specimens submitted. Predominant organisms were staphylococcus, coliform and streptococcus.
4. Treatment emphasized early diagnosis, adequate drainage and continued observation. The importance of drainage prior to operative procedures was noted.

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WHAT IS YOUR DIAGNOSIS?

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ANSWER ON PAGE 161



23-33-21

17 year old male

HISTORY: The patient complained of abdominal pain and diarrhea for three months, associated with 25 pound weight loss. Although there had been no hematemesis or melena, the stools showed a 4 plus reaction. Hemoglobin 8.6 grams percent.

new

**“Doctor, when the kids
act up and nothing goes right,
I get these throbbing
pains in the back of my head.”**

**a new formulation
that relieves pain
in tension headache
and neuralgia**

Dialog is a combination of 15 mg allobarbital and 300 mg acetaminophen. Allobarbital, a proven barbiturate, provides desirable sedation in patients experiencing pain and discomfort. Acetaminophen is a nonsalicylate analgesic-antipyretic, well tolerated and useful in a wide range of mildly painful and febrile conditions.

Dialog is well tolerated, even by those sensitive to aspirin. It is nonirritating to the gastrointestinal tract and has no adverse effects on the kidneys.

- Raises the pain threshold
- Suppresses the pain-producing mechanism
- Reduces emotional tension



Dialog™ (allobarbitol and acetaminophen CIBA)

Indications: For relief of pain and discomfort of simple headache; neuralgia, myalgia, and musculo-skeletal pain; dysmenorrhea; bursitis; sinusitis; fibrositis. Also indicated to reduce fever and to relieve discomfort due to respiratory infections, influenza, and other febrile conditions.

Contraindication: Not recommended during pregnancy.

Caution: May be habit-forming. Do not use in patients sensitive to barbiturates or in those with moderate to severe hepatic disease.

Side Effects: Nausea, transitory dizziness, rash. Overdosage of allobarbitol produces symptoms typical of acute barbiturate excess.

Dosage: *Adults:* 1 or 2 tablets every 4 hours. Not to exceed 8 tablets in 24 hours. *Children 6 to 12:* 1/2 to 1 tablet every 4 hours. Not to exceed 4 tablets in 24 hours.

Supplied: *Tablets* (white, scored), each containing 15 mg allobarbitol and 300 mg acetaminophen; units of 3 bottles of 30.

For your convenience—prescription-size bottle of 30.

CIBA Pharmaceutical Company, Summit, N.J.

C I B A

arrest diarrhea



LOMOTIL[®]

Each tablet and each 5 cc. of liquid contains:

diphenoxylate hydrochloride 2.5 mg.

(Warning: May be habit forming)

atropine sulfate 0.025 mg.







Effectiveness: Lomotil possesses a unique degree of effectiveness in both acute and chronic diarrhea.

Convenience: Lomotil is supplied as small, easily carried, easily swallowed tablets and as a pleasant, fruit-flavored liquid.

Versatility: The therapeutic efficiency, safety and convenience of Lomotil may be used to advantage alone or as adjunctive therapy in diarrhea associated with:

- Ulcerative colitis
- Acute infections
- Irritable bowel
- Regional enteritis
- Drug therapy
- Food Poisoning
- Functional hypermotility
- Malabsorption syndrome
- Ileostomy
- Gastroenteritis and colitis

Dosage: For correct therapeutic effect—Rx correct therapeutic dosage. The recommended initial daily dosages, given in divided doses, until diarrhea is controlled, are:

Children: Age	Total Daily Lomotil Dosage	Lomotil Liquid Dosage (Each teaspoonful [4 cc.] contains 2 mg. of diphenoxylate HCl)
3-6 months	3 mg. 	½ tsp. 3 times daily
6-12 months	4 mg. 	½ tsp. 4 times daily
1-2 years	5 mg. 	½ tsp. 5 times daily
2-5 years	6 mg. 	1 tsp. 3 times daily
5-8 years	8 mg. 	1 tsp. 4 times daily
8-12 years	10 mg. 	1 tsp. 5 times daily

Adults: 20 mg. (2 tsp. 5 times daily or 2 tablets 4 times daily) Based on 4 cc. per teaspoonful. Maintenance dosage may be as low as one-fourth the initial daily dose.

Precautions: Lomotil, brand of diphenoxylate hydrochloride with atropine sulfate, is a Federally exempt narcotic preparation of very low addictive potential. Recommended dosages should not be exceeded. Lomotil should be kept out of reach of children since accidental overdosage may cause severe respiratory depression. Lomotil should be used with caution in patients with impaired liver function and in patients taking addicting drugs or barbiturates. The subtherapeutic amount of atropine is added to discourage deliberate overdosage.

Side Effects: Side effects are relatively uncommon but among those reported are gastrointestinal irritation, sedation, dizziness, cutaneous manifestations, restlessness, insomnia, numbness of extremities, headache, blurring of vision, swelling of the gums, euphoria, depression and general malaise.

SEARLE

Research in the Service of Medicine

Everyone says she's a barrel of fun



But what does she think?



**Many overweight patients
can benefit from the appetite
control provided by the sustained
anorexigenic-tranquilizing
action of BAMADEX SEQUELS:
anorexigenic action of
amphetamine; tranquilizing
action of meprobamate;
prolonged action through
sustained release of
active ingredients.**

Bamadex® Sequels®

DEXTRO-AMPHETAMINE SULFATE (15 mg.) SUSTAINED RELEASE CAPSULES
WITH MEPROBAMATE (300 mg.)

**to help establish
a new dietary pattern**

Contraindications: Dextro-amphetamine sulfate: in hyperexcitability and in agitated prepsychotic states. Previous allergic or idiosyncratic reactions to meprobamate.

Precautions: Use with caution in patients hypersensitive to sympathomimetic compounds, who have coronary or cardiovascular disease, or are severely hypertensive.

Dextro-amphetamine sulfate: Excessive use by unstable individuals may result in psychological dependence.

Meprobamate: Careful supervision of dose and amounts prescribed is advised, especially for patients with known propensity for taking excessive quantities of drugs. Excessive and prolonged use in susceptible persons, e.g. alcoholics, former addicts, and other severe psychoneurotics, has been reported to result in dependence on the drug. Where excessive dosage has continued for weeks or months, reduce dosage gradually. Sudden withdrawal may precipitate recurrence of preexisting symptoms such as anxiety, anorexia, or insomnia; or withdrawal reactions such as vomiting, ataxia, tremors, muscle twitching and, rarely, epileptiform seizures. Should meprobamate cause drowsiness or visual disturbances, reduce dosage and avoid operation of motor vehicles, machinery or other activity requiring alertness. Effects of excessive alcohol consumption may be increased by meprobamate. Appropriate caution is recommended with patients prone to excessive drinking. In patients prone to both petit and grand mal epilepsy meprobamate may precipitate grand mal attacks. Prescribe cautiously and in small quantities to patients with suicidal tendencies. **Side Effects:** Overstimulation of the central nervous system, jitteriness and insomnia or drowsiness.

Dextro-amphetamine sulfate: Insomnia, excitability, and increased motor activity are common and ordinarily mild side effects. Confusion, anxiety, aggressiveness, increased libido, and hallucinations have also been observed, especially in mentally ill patients. Rebound fatigue and depression may follow central stimulation. Other effects may include dry mouth, anorexia, nausea, vomiting, diarrhea, and increased cardiovascular reactivity.

Meprobamate: Drowsiness may occur and can be associated with ataxia; the symptom can usually be controlled by decreasing the dose, or by concomitant administration of central stimulants. Allergic or idiosyncratic reactions: maculopapular rash, acute nonthrombocytopenic purpura with petechiae, ecchymoses, peripheral edema and fever, transient leukopenia. A case of fatal bullous dermatitis, following administration of meprobamate and prednisolone, has been reported. Hypersensitivity has produced fever, fainting spells, angioneurotic edema, bronchial spasms, hypotensive crises (1 fatal case), anuria, stomatitis, proctitis (1 case), anaphylaxis, agranulocytosis and thrombocytopenic purpura, and a fatal instance of aplastic anemia, but only when other drugs known to elicit these conditions were given concomitantly. Fast EEG activity, usually after excessive dosage. Impairment of visual accommodation. Massive overdosage may produce drowsiness, lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse.



LEDERLE LABORATORIES

A Division of American Cyanamid Company,
Pearl River, New York

695-6



ELECTROCARDIOGRAM

OF THE MONTH

AGE: 57 SEX: M BUILD: Slender BLOOD PRESSURE: 140/70

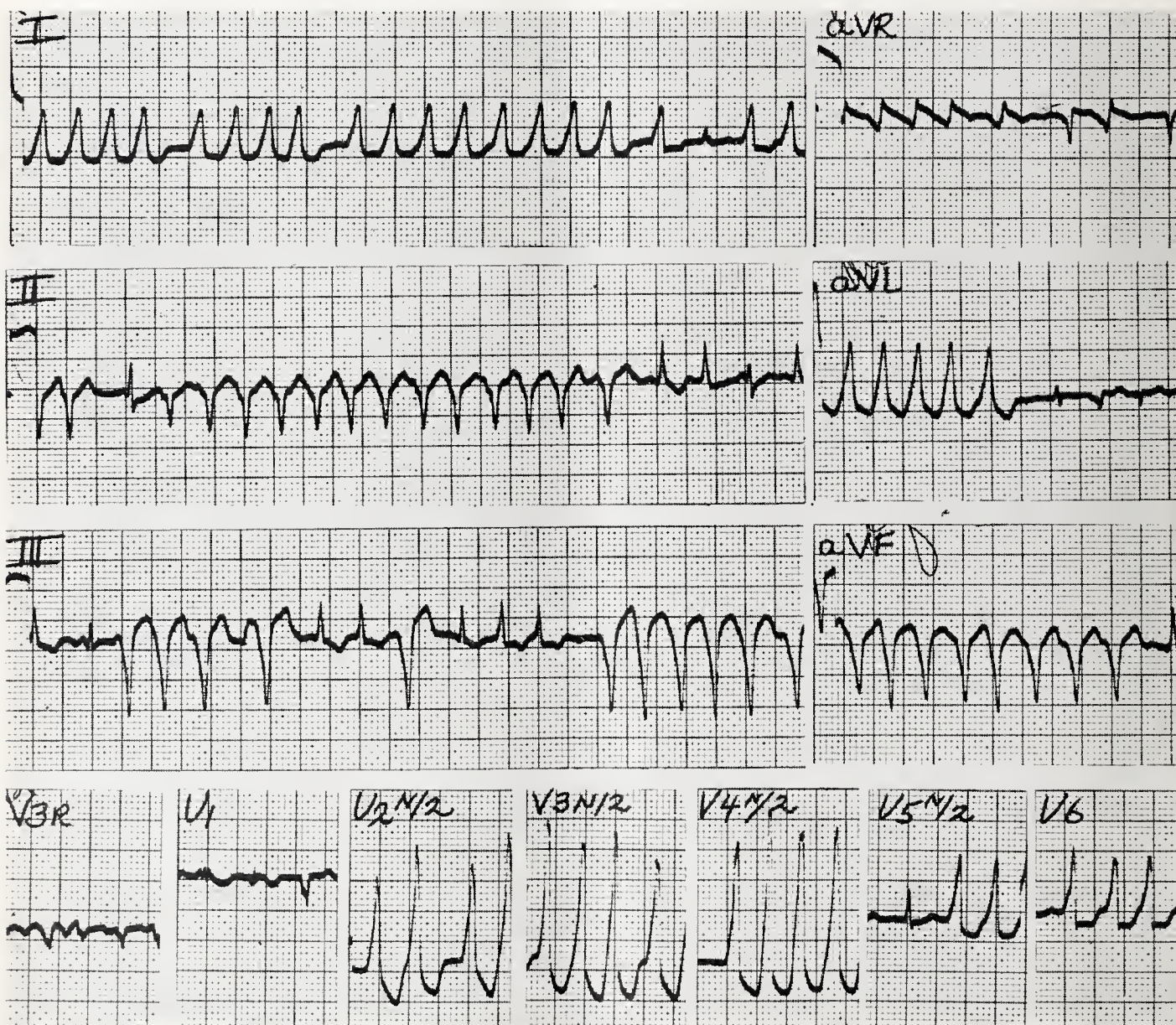
CARDIAC DIAGNOSIS: Ventricular Tachycardia

OTHER DIAGNOSES: None

MEDICATION: .5 mg. Digitalis

HISTORY: On Digitalis for atrial fibrillation

ANSWER ON PAGE 167.



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine



EDITORIAL

Potpourri—American Medical Association, Chicago, 1966

Alfred Kahn, Jr., M.D.

The American Medical Association Convention again convincingly demonstrated the lively interest of U.S. Physicians in both scientific and organized medicine. At this session, organized medicine held center stage with the big issues evolving around medicare, better use of medicare manpower in the broadest sense, the discussions of paramedical business in terms of ethics, hospital based specialists, dues raises, and a host of other interesting topics.

For the AMA delegates, there was a meeting virtually every morning and afternoon beginning the day before the official convention opening until 1:30 p.m. the day of closing.

Saturday, June 25, 1966 was devoted to medicare. It consisted entirely of questions and answers. The delegates were presented with a panel of experts including Mr. Arthur E. Hess, who is the Director of the Bureau of Health Insurance, and Mr. Melvin Blumenthal, who represents the office of the general council of Health, Education, and Welfare Department. The exchanges were lively, especially about Part B of the medicare program. The physicians were very interested in whether or not an intern could receive pay; he could not. Hospitals were not authorized to request Part B payments for work done by their interns. In fact, hospitals are not to apply for any funds under Part B. A senior resident who was doing about the same work as a resident could under certain circumstances apply for Part B payments. A good deal of comment was directed at whether a promissory note could be used as evidence of payment so that Part B funds could be collected; the answer is yes but depended on state laws; this promissory note would probably

not be subject to income tax, however, until it was paid or sold. The patient must pay his total bill before applying for reimbursement, the panel answered to this query. A discussion was held as to whether the low fees paid by Blue Cross would be used as a level to force down the meaning of usual and customary fees, and the consensus was emphatically no. Post dated checks were discussed and their use of acceptance as payment depends on state laws. A member of the audience asked if a physician was treated under medicare, would he have to pay \$50.00 before reimbursement would be made; in this case the bill would be for the total amount but the treating doctor could "forgive" the first \$50.00 of the bill. A central agency will keep a record of patients payments so that the patient can prove to the physician he has paid \$50.00 as required. Of considerable importance is the legal position of the utilization committee: unless there is a state law absolving its acts, additional liability insurance should be bought. An interesting point arose as to whether a physician could collect under Plan B if the patient's hospital payments under Plan A were cut off; the answer is the physician could still collect. In general, the advice to physicians was to use direct billing, and save assignment billing for unusual cases.

The 22nd Annual Meeting of the Conference of Presidents and Other Officers of the State Medical Convention was held on Sunday, June 26, 1966. The high light was an address by Mr. Richard M. Nixon; he endorsed the Viet Nam War but pointed out his divergent views from the Democratic administration. It was a very effective forceful talk. Sir Angus Murray, President of The Australian Medical Association spoke on

*Includes metastatic cancer and multiple lesions.

medicine in Australia. They fought socialized medicine and really came out better than we have. Eventually a four part plan for subsidized medicine was passed in Australia. It consists of four parts: A pension service run entirely by general practitioners and entirely as a home service at a low physician payment rate, a pharmaceutical benefit plan which is getting very expensive due to the addition of new drugs, a hospital benefit plan in which the government subsidizes approved hospitalization plans, and lastly, a medical benefit fund in which subsidization is given to pre-existing group plans.

The first meeting of the House of Delegates was held in the afternoon of June 26, 1966. The principal address was given by Dr. Appel, President of The American Medical Association. This was followed by a very stirring performance of the "Sing-Out" Group sponsored by the Moral Re-armament Organization; it was excellent; the songs were largely self written and expressed patriotic themes and the value of high ideals.

The business sessions of the House of Delegates and the Reference Committees were held all day and some nights on June 27, 28, 29 and until the afternoon of June 30, 1966. Older members remember only one busier session. As was customary all of the business of the House was presented at the Monday meetings. This consisted of about 108 Resolutions from the Delegates, many reports from the Board of Trustees, and many reports from councils and committees. These reports were referred to open hearings by reference committees on June 28th and then were referred back to the House for final action on June 29th and June 30th. Arkansas introduced Resolution 34 which concerned itself with increasing the health services including nursing, etc. This was sent to the Board of Trustees reference committee, and approved by the House. To discuss all the business of the House would be voluminous. There were some high lights. Rather heated discussions were held on whether a physician should dispense drugs and eye glasses. The final decisions here were in terms of medical ethics, namely when it was in the best interest of the patient and when there was an inadequate source, and when there was no financial exploitation. A tremendous interest was shown in the matter of so-called hospital based specialists. Heretofore, these physicians were paid by the hospitals for services rendered. In the future and under the impetus of

medicare Part B, the physician will submit his own bill. Some hospitals have severed their relations with some of their hospital based specialists and this caused great indignation in the House. Resolutions were passed declaring it unethical for a physician to try and displace his hospital based colleagues. Of course, the matter of dues was warmly debated. A raise of \$25.00 per year was voted; New York and New Jersey hotly opposed this saying that the American Medical Association activities could be effected with certain reductions in expenditures. Most delegates felt that American Medical Association activities needed to be expanded, not curtailed.

The reference committee sessions were attended by the Arkansas Delegates. Dr. James Kolb was honored by being made a member of the Reference Committee which had hearings on insurance matters; it was the busiest Reference Committee and had to be divided into two parts. Dr. Alfred Kahn attended the Reference Committee which reviewed matters pertaining to medical education in this committee approval was voiced for a new type of rotating internship: — at least four months in internal medicine and then any other one or more major specialties; mixed internships were abandoned. This same committee dealing with medical education approved a new intern-hospital contract specifying certain features which were new; it also discussed the relationship of Osteopathy to Medicine—the committee felt that osteopathy did not evince much desire to bring their educational standards up to that of the better medical schools, and this had many ramifications if osteopathic physicians were trained in medically approved hospital residencies.

One of the interesting small meetings was an invitational meeting of certain states (largely geographic neighbors) to meet with the Council on Medical Education. This was attended by the Arkansas Delegates. The kaleidoscopic patterns of medical education were high lighted ranging from letters of reasonable assurance for new medical schools to the nursing situation. One interesting topic was whether medical school and undergraduate schools can be effectively telescoped into five or six years. The Chairman of the meeting was very strongly against cutting down a physician's general education. No one offered a concrete program on the nursing and paramedical personnel shortage. The big problem is that there is no single agency who can speak with authority

for all of these groups; the term nurse was discussed as it implied only women should go into nursing whereas corpsmen in the U.S. Navy were very effective. The matter of full time chiefs of service in small, nonaffiliated hospitals was reviewed briefly. This important council was actively seeking, as well as, giving advice.

In retrospect this 115th Annual Convention of the American Medical Association was a lively one but devastating to the untrained glutens maximus.

RESOLUTIONS



WHEREAS, the passing from this life of Dr. Harvey Shipp, an honored and valued member of the community and of the Pulaski County Medical Society, is noted with sincere sorrow, and

WHEREAS, Dr. Shipp devoted much time and effort on behalf of this Society including serving as its President, and

WHEREAS, Dr. Shipp had attained the highest degree of respect among his fellow physicians for his devotion to the practice of medicine;

BE IT THEREFORE RESOLVED:

THAT, the Members of the Pulaski County Medical Society express to the family of Dr. Shipp the heartfelt sympathy of this organization, and

That, a copy of this resolution be made a matter of permanent record in the minutes of this Society, and

THAT, a copy of this resolution be sent to his family, and

THAT, a copy of this resolution be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee

John McCollough Smith, M.D., Chairman

William L. Fulton, M.D.

T. Duel Brown, M.D.

Approved by Executive Committee

Pulaski County Medical Society

July 20, 1966

RESOLUTION

WHEREAS, the recent death of Dr. B. T. Kolb, a loyal member of this Society, has caused us to be deeply grieved; and

WHEREAS, Dr. Kolb served his profession as well as his community with unselfish devotion; and

WHEREAS, he earned the respect and admiration of his colleagues as well as the patients to whom he administered;

BE IT THEREFORE RESOLVED:

THAT, the Members of the Pulaski County Medical Society pause with respect to honor the memory of Dr. Kolb; and

THAT, an expression of our heartfelt sympathy be extended to his family; and

THAT, a copy of this resolution be made a part

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Adenocarcinoma of the colon with fistula into the upper small bowel.

X-RAY FINDINGS: A rounded polypoid filling defect within the colon at the level of the hepatic flexure can be seen through the barium column of the proximal transverse colon. The barium in the upper small bowel with no contact between this and that which has refluxed into the distal ileum indicates the fistula. The dilated distal ileum and ascending colon indicate partial obstruction at the level of the tumor. The age of the patient suggested the likelihood of a lymphoma.

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: App. 240 **RHYTHM:** Atrial Fibrillation with long runs of ventricular tachycardia

PR: —sec. **QRS:** Variable **QT:** Variable

ABNORMAL: Absent P waves. Long runs of regular, prolonged, bizarre QRS complexes at a rate of 240.

COMMENT: Atrial fibrillation with long runs of ventricular tachycardia. Patient proved to have thyrotoxic heart disease.

of the permanent records of this Society; that a copy of this resolution be published in the Journal of the Arkansas Medical Society; and that a copy of this resolution be forwarded to the family of Dr. Kolb.

By Action of the Memorials Committee
John McCollough Smith, M.D., Chairman
William L. Fulton, M.D.
T. Duel Brown, M.D.

Approved by Executive Committee
Pulaski County Medical Society
July 20, 1966

THINGS TO COME

UAMC Continuing Education Programs— 1966-67

Sponsored jointly by the University of Arkansas Medical School, The Arkansas Medical Society and the Arkansas Academy of General Practice.

Sept. 29—Current Problems in Respiratory Disease—Little Rock

Nov. 4 and 5—Hypertension and Renal Disease—Little Rock

Jan. 19—Postgraduate Obstetrics-Gynecology Symposium—Little Rock

Feb. 24 and 25—Current Trends in Dermatology—Hot Springs

March 17 and 18—General Surgery Symposium—Hot Springs

April 20—Orthopedic Aspects of Rheumatoid Arthritis—Little Rock

Continuing seminars in psychiatry, medicine, and pediatrics also are available to limited numbers of physicians. All programs will provide AAGP credit. For information call or write the Department of Continuing Education, University of Arkansas Medical Center, 4301 West Markham, Little Rock, Arkansas.

CARDIOLOGY 1966

A four-day postgraduate program in clinical cardiology will be presented by the American College of Cardiology and the Institute for Cardio Pulmonary Diseases of the Scripps Clinic and Re-

search Foundation on December 6, 7, 8, and 9, 1966 in La Jolla, California.

Program Director: E. Grey Dimond, M.D., F.A.C.C.

Tuition: Sixty Dollars for members of the College; One Hundred Dollars or non-members.

Requests for registration forms and program brochure should be directed to the Executive Director, American College of Cardiology, 9650 Rockville Pike, Washington, D.C. 20014.

OBITUARY

Dr. Miles E. Foster, Sr.

Dr. M. E. Foster, Sr., 79 years old, of Fort Smith died June 14, 1966. He was co-founder and senior surgeon of Cooper Clinic. He was a member of the First Presbyterian Church and a veteran of World War I. He was also a member of Sebastian County Medical Society, Arkansas Medical Society and the American Medical Association. He is survived by his widow, two sons and one daughter.

Dr. Albert H. Tribble

Dr. A. H. Tribble, 89, of Hot Springs died June 23, 1966. He was a native of Franklin, Kentucky, where he was born in 1876, the son of King and Nelle Roark Tribble. He came to Hot Springs soon after graduation from the University of Kansas Medical School. In 1907, he went abroad for a year's post-graduate study at the University of Berlin. Dr. Tribble was honored by the Garland County Medical Society, of which he was a past president, in 1964 for fifty years service to the medical profession. He held the position of chairman of the Federal Registration Board from 1916 until recently. He was Hot Springs' first physician to become a fellow of the American College of Surgeons. He was instrumental in the building of the new St. Joseph's hospital and St. Joseph's School of Nursing, now no longer in existence. He was a member of the nursing school faculty for many years as instructor in anatomy. He was also a member of the Arkansas Medical Society and the American Medical Association.

He was a member of the Kiwanis Club and served as its president in the late 1920's. He was active in the Chamber of Commerce and was a member of Hot Springs Masonic Lodge No. 62. During

World War I, he served with the Army Medical Corps. He established the Trivista residential section in Oaklawn, one of the city's finest. He is survived by one daughter.



PERSONAL AND NEWS ITEMS

Dr. Wade Attends Reunion

Dr. H. King Wade of Hot Springs, a member of the class of 1916, University of Tennessee Medical School, Memphis, attended the 50th reunion of his class at the medical school in June. Dr. Wade was accompanied by Mrs. Wade and their son and daughter-in-law, Dr. and Mrs. H. King Wade, Jr., also of Hot Springs.

Dr. Mock Honored

Dr. Will Mock of Prairie Grove, whose medical practice spans seventy years of service, was honored at the annual Bosses Night dinner given by the Washington County Medical Assistants Society in June at the Country Club in Fayetteville. Dr. James Mashburn and Dr. Donald B. Baker, both of Fayetteville, participated in the program.

Dr. Boyer Retired

After more than a half-century as a medical doctor, including twenty years spent in the Lincoln, Arkansas area, Dr. H. L. Boyer of Lincoln has retired. His retirement leaves Lincoln without a practicing physician.

Dr. Biggs to Trumann

Dr. Jack C. Biggs has become associated with Dr. Floyd A. Smith, Jr. at Smith's Hospital, Inc. in Trumann. Dr. Biggs is a graduate of the University of Tennessee School of Medicine.

Dr. Ashby's Son Is M.D.

Robert M. Ashby, son of Dr. and Mrs. John W. Ashby of Benton, received his doctor of medicine degree from the University of Arkansas School of Medicine in June.

Dr. Wood Certified

Dr. Jack A. Wood of Fayetteville recently passed Part II of the American Board of Surgery examination, and was thereby certified by the American Board of Surgery.

Dr. Tucker Joins Clinic

Dr. Charles Tucker has joined the staff of the Salem-Ash Flat Clinic in Salem. He is a native of Oil Trough and a graduate of the University of Arkansas School of Medicine.

Dr. Norris to Beebe

Announcement has been made of the association of Dr. E. Lloyd Norris with the Kinley Clinic in Beebe. He is a 1965 graduate of the University of Arkansas Medical School and a native of Conway, Arkansas.

Dr. LeBlanc Is Fellow

Dr. Joseph V. LeBlanc of Fort Smith was admitted as a Fellow of the American College of Chest Physicians at a meeting of the College in Chicago, June 24-27, 1966.

Dr. Collins to Prairie Grove

Dr. Jerry Collins will become associated with Dr. W. H. Mock and Dr. Jeff Baggett at the Mock Clinic in Prairie Grove on September 1, 1966, it was announced by Drs. Mock and Baggett. Dr. Collins is a graduate of Texas University School of Medicine.

Dr. Baker Nominated

Dr. Rodney Baker of Fayetteville has been nominated to serve as chairman of the Washington County Board of the Arthritis Foundation.

New Doctor in Rison

Dr. G. H. Ferrell, Jr., a graduate of the University of Arkansas Medical School, has opened his offices in the Cleveland County Memorial Hospital in Rison for the practice of medicine.

Dr. McLarey in Practice

Dr. Don C. McLarey has joined the staff of Van Buren County Memorial Hospital in Clinton, Arkansas. He is a graduate of the University of Arkansas School of Medicine.

Hospital Elects Staff Officers

Dr. E. Morgan Collins was re-elected chief of the medical staff for 1966-67 at Forrest Memorial Hospital in Forrest City. Dr. G. A. Sexton was elected vice chief of staff, and Dr. Herbert Hollis was elected secretary. Dr. Hubert Baird is chief of medicine; Dr. J. Neal Laney is chief of obstetrics and newborn; and Dr. Charles E. Crawley is chief of surgery.

Dr. Finch to Caraway

Dr. Robert Finch opened a modern medical clinic in Caraway in July. The new clinic is located on Main Street in Caraway. Dr. Finch is a graduate of the University of Arkansas Medical School.

Dr. Williams Appointed

Dr. T. E. Williams of Newport has been appointed a member of the Governor's Advisory Council on Aging. The appointment was made by Governor Faubus.

Dr. Kolb Re-Elected

Dr. James M. Kolb, Sr., one of Arkansas' delegates to the American Medical Association, was re-elected to the Council on Constitution and By-Laws of the AMA at the June 1966 meeting of the AMA in Chicago.

Arkansas Medical Society 1967 Annual Session in Hot Springs

There has been a change in the meeting place and dates for the 91st Annual Session of the Arkansas Medical Society. The meeting will be held in the Arlington Hotel at Hot Springs, Arkansas, April 30-May 3, 1967.

Technologist Receives Award

Miss Marion Walker, an x-ray and laboratory technologist for Dr. John M. Samuel of Little Rock, has received the American Medical Technologist's Distinguished Achievement Award at

its 28th annual convention in July at New Orleans.

Course Held at Little Rock

A pioneer course in fungus infections and lung disease was held in Little Rock in June with medical personnel from eight states in attendance. The first course is expected to spur as many as 300 similar courses in the nation during the next two years, according to Dr. J. T. Herron, state health officer.

Dr. McLendon in Fifty Year Club

Dr. Mac McLendon, 77, of Marianna has been named to the Fifty Year Club of American Medicine. He is a 1915 graduate of the University of Alabama Medical School and he began practicing at Marianna in 1917. He has delivered more than 5,000 babies during the years he has practiced medicine and he is still actively practicing. Dr. McLendon says he has no plans to retire.

Kolb Chapel Dedicated

The Kolb Memorial Chapel of the First Presbyterian Church in Clarksville was dedicated in June. The chapel was given by Mr. and Mrs. Virgil Kolb in memory of his father and mother, Dr. James Silas Kolb and Mollie Clark Kolb. Virgil Kolb and Dr. James M. Kolb, Sr. of Clarksville are the only living children of Dr. and Mrs. James S. Kolb.

Drs. Announce Associate

Dr. Joe P. Stanley and Dr. Ernest H. Harper announce the association of Dr. Michael N. Harris in the formation of the Stanley-Harper-Harris Diagnostic Clinic at 400 Pershing Square in North Little Rock, Arkansas.



PROCEEDINGS OF SOCIETIES

Pulaski

Members of the Pulaski County Medical Society have distributed pamphlets to their patients explaining what the new Medicare plan will and

will not pay. Dr. Joseph D. Calhoun is president of Pulaski County Medical Society.

Washington

A recent course was conducted in Fayetteville, under the sponsorship of the Washington County Medical Society, on the subject of the transportation and care of the injured. The course was presented primarily to lay persons, such as firemen, police, ambulance attendants, and to other para-medical groups. Nurses and nurses aides also attended. According to Dr. J. Warren Murry of Fayetteville, the course was well received and attended.



NEW MEMBERS

DR. JAMES McLAIN STALKER is a new member of Independence County Medical Society. He is a native of Bedford, Indiana, and he received his preliminary education from the University of Maryland and the University of Arkansas. He was graduated from the University of Arkansas School of Medicine in 1962 and he interned at Hillcrest Medical Center in Tulsa, Oklahoma. He completed residencies in surgery at the Veterans Administration Hospital in Little Rock and at Hillcrest Medical Center in Tulsa. He served in the U.S. Army from 1954 until 1956. Dr. Stalker is a surgeon and he has his office in Batesville, Arkansas.

Craighead-Poinsett County Medical Society announces that DR. JAMES F. ROGERS is a new member. Born at Jonesboro, he received his pre-medical education from Arkansas State College. He enrolled at the University of Arkansas School of Medicine and was graduated from there in 1960. He interned at Lackland Air Force Base Hospital in San Antonio, Texas and he completed residencies in dermatology at the University of Arkansas Medical Center and at the Veterans

Administration Hospital in Little Rock. He served in the U.S. Air Force from 1960-1963. Dr. Rogers' office address is 806 Jeter Drive in Jonesboro, Arkansas.

A new member of Baxter County Medical Society is DR. JACK C. WILSON, a native of Little Rock. He received his pre-med from Hendrix College and the University of Arkansas. He received his M.D. degree from the University of Arkansas School of Medicine in 1963 and he interned at the University of Arkansas Medical Center. He entered the U.S. Air Force in 1964 and completed his tour of duty in 1966. Dr. Wilson's office address is 353 East Eighth Street in Mountain Home, Arkansas. He is a general practitioner.

DR. RICHARD BARNES CLARK is a new member of the Pulaski County Medical Society. He is a native of Little Rock, and he received his preliminary education from Rice University at Houston, Texas. He was graduated from the University of Arkansas School of Medicine in 1958 and he interned at Tampa General Hospital in Tampa, Florida. He served in the U.S. Army from 1961-1963. Dr. Clark's specialty is anesthesiology and he is on the teaching staff at the University of Arkansas Medical Center.

A new member of the Pulaski County Medical Society is DR. BILLY MITCHELL CHANDLER, a native of Little Rock. He received his pre-med from Arkansas State Teachers College and he received his M.D. degree from the University of Arkansas School of Medicine in 1960. He interned at St. Vincent's Infirmary in Little Rock. His office address is 115 East Capitol in Little Rock. Dr. Chandler's specialty is ophthalmology.



BOOK REVIEWS

SPONTANEOUS REGRESSION OF CANCER, Tilden C. Everson, M.D., Ph.D., F.A.C.S.; Warren H. Cole, M.D., F.A.C.S., F.R.C.S. (Eng. Hon.), F.R.C.S. (Edin., Hon.) W. B. Saunders Company, Philadelphia and London, 1966.

This is a fascinating book and the title is self explanatory.

Many practicing physicians have had the experience of a tumor disappearing without any treatment. The authors discuss a group of collective cases of varying types. They include tumors of the kidneys, tumors of the nervous system, melanoma, urinary tumors, etc. Of particular interest to this reviewer is the discussion of five pages in the summary that tell about this phenomenon. Any practicing physician should enjoy reading this book.

DISEASES OF THE HEART, by Charles K. Friedberg, M.D., W. B. Saunders Company, Philadelphia and London, 1966.

One of the most outstanding texts are *DISEASES OF THE HEART*. This book is comprehensive and authorized. It is encyclopedic in scope. There are excellent references. There are adequate illustrations and charts. In every respect, this is a fine textbook. It is highly recommended for those interested in heart disease.

CURRENT DIAGNOSIS, by Howard F. Conn, M.D., Robert J. Clohery, M.D., and Rex B. Conn, Jr., M.D. W. B. Saunders Company, Philadelphia and London, 1966.

This textbook of diagnosis is written by a number of well-known authorities in the field of medicine. It is a complete but abbreviated reference manual. It is highly recommended for use on a teaching ward or as a handy reference to begin one's study prior to more intensive reading. It contains a number of charts, there are virtually no illustrations, and references are almost totally absent. As a quick reference manual, it is highly recommended.



Human Response to Low Concentrations of p,p-Diphenylmethane Diisocyanate (MDI)

R. B. Konzen et al (US Public Health Service, Fort Douglas Station, Salt Lake City) *Amer Industr Hyg Assoc J* 27:121-127 (April) 1966

The spray application of a polyurethane foam was monitored in an underground mine to determine the air concentrations of diisocyanate and the resultant human response. Results showed that the majority of unreacted p,p-diphenylmethane diisocyanate (MDI) was contained in the particulate material generated by the spray mechanism. The immunochemical response to human subjects showed that an exposure of about 1.3 ppm/min resulted in an antibody response, whereas an exposure of about 0.9 ppm/min did not. Detection of MDI antibodies is diagnostic proof of exposure to isocyanates.

Hydrofluoric Acid Burn Treatment

C. F. Reinhardt et al (E. I. du Pont de Nemours and Co., Haskell Laboratory, Newark, Del.) *Amer Industr Hyg Assoc J* 27:166-171 (April) 1966

The treatment of hydrofluoric acid (HF) burns has been in a state of flux in the past, with numerous remedies being tried. This presentation offers a somewhat different approach which centers around the use of certain high-molecular weight quaternary ammonium compounds. The treatment consists basically in thorough and immediate flushing with water, followed by iced alcohol or aqueous benzethonium chloride (Hyamine 1622) soaks. A review of over 200 case records confirms the efficacy of this treatment when compared to that in prior use, especially in the treatment of second degree burns.

Abnormal Aminoaciduria in Petit Mal Epilepsy

J. G. Millichap, J. D. Jones, and J. E. Etheridge, Jr. (707 W Fullerton Ave, Chicago) *Neurology* 16:569-572 (June) 1966

The mean excretion of 13 amino acids in 40 children with petit mal epilepsy was significantly higher than the values obtained in 38 healthy controls. The hyperaminoaciduria occurred in seven untreated patients and was not the result of side effects of antiepileptic drugs. In five patients treated with phenobarbital and mephobarbital and nine patients who received trimethadione, the aminoaciduria was generally less than that in untreated patients. The hyperaminoaciduria was modified in six children whose petit mal was controlled by the ketogenic diet and in six it was benefited by acetazolamide. The relation of the hyperaminoaciduria to the etiology of petit mal is undermined.

Metastatic Spinal Epidural Tumors

A. W. Auld (1282 49th Pl S, Birmingham, Ala) and A. Buermann *Arch Neurol* 15:100-108 (July) 1966

Fifty patients with various types of metastatic spinal epidural tumors are reviewed. Patients with carcinoma of the lung had the poorest prognosis regardless of the type of treatment or neurological findings. All died within six months after the onset of neurological symptoms. Painless paraplegia was a common finding. Surgery (decompressive laminectomy) was helpful in only 15% to 20%. No patient with complete paraplegia was improved by surgery, and all died within six months postoperatively. Epidural venous obstruction with resultant spinal cord edema and congestion play a major role in the pathogenesis of this disease.



Sponsored by Arkansas Tuberculosis Association

ERYTHEMATOUS LESIONS AS CLINICAL MANIFESTATIONS OF HISTOPLASMOSIS

In a rare occurrence, thirty persons developed erythema multiforme or erythema nodosum or both during an outbreak of histoplasmosis in a town in Iowa. The skin lesions preceded clinical manifestations in some patients, appeared after onset of histoplasmosis in others.

In 1962 an epidemic of histoplasmosis occurred in Mason City, Iowa. The source of the infection was a starling roost in the center of town, and the epidemic resulted when heavy equipment was used to remove trees and underbrush from the contaminated area. In 1964 a second attempt to clear the site led to a second epidemic of histoplasmosis in the same city.

During the second outbreak acute pulmonary histoplasmosis developed in 87 persons, and erythema multiforme or erythema nodosum in 30. The evidence is that the skin lesions were related to primary infection with *Histoplasma capsulatum*.

Mason City has a population of 30,642 and is located in the prosperous farmlands of north central Iowa.

Investigation six months after the first outbreak revealed that 28 persons had had clinical blastoplasmosis, but no cases of erythema multiforme or erythema nodosum were reported. When there was additional work at the site of the starling roost two years later, an increase occurred in the number of cases of histoplasmosis. Furthermore, an unusual number of cases of erythema multiforme and erythema nodosum appeared.

In a survey undertaken by the Kansas City Field Station of the Communicable Disease Center of the Public Health Service, skin and serologic tests and chest X-rays were made of school children, factory workers, and employees of down-

town stores.

The patients with erythema lesions were examined and interviewed. The lesions were classified as erythema multiforme or erythema nodosum or both. Biopsies of both types of lesions in one patient demonstrated tissue reactions consistent with erythema multiforme and erythema nodosum.

APPEARANCE OF RASH

Pulmonary histoplasmosis developed in 81 persons between February 10 and March 11, 1964, and six other cases occurred later. *H. capsulatum* was cultured from lung biopsies of two patients. Among the 30 persons with erythema multiforme, erythema nodosum, or a combination of both rashes were 18 patients who had had clinical histoplasmosis prior to the rash; in the other 12 there had been no symptoms before the skin rash appeared.

The clinical illness that preceded the onset of rash was typical of acute pulmonary histoplasmosis. It was characterized by a sudden onset, influenza-like symptoms, and prolonged convalescence. The most frequent complaints were fever, chills, myalgia, pleuritic chest pain, headache, night sweats, excessive fatigue, and dry, hacking cough. The period from onset of clinical disease to rash ranged from two to 42 days, with a median of 10 days.

The lesions of erythema multiforme varied in configuration and size, ranging from a few millimeters to 5 cm. in diameter. Most of the lesions were purplish-red, elevated plaques, frequently having a depressed slate-blue center. The erythema-nodosum lesions consisted of subcutaneous, tender, reddish-brown, warm nodules, ranging from 0.5 cm. to 2.0 cm. in diameter.

All 29 of the 30 patients skin tested for histoplasma were positive; the one patient not tested had a positive serologic reaction. Only one patient was positive to tuberculin.

ANTONE A. MEDEIROS, M.D.; SOPHOCLES D. MARTY, M.D.; FRED E. TOSH, M.D.; and TOM D. Y. CHIN, M.D. *New England Journal of Medicine*, February 24, 1966.

BACKGROUND OF RESIDENTS

The majority of patients were lifetime residents of Iowa, and none had lived for more than six months in an area of high endemic prevalence for histoplasmosis. All had visited the downtown shopping area during the clearing of the starling roost in February, 1964.

The 1964 epidemic in Mason City is the first outbreak of histoplasmosis associated with erythema multiforme and erythema nodosum in which a point source has been clearly established. Among the evidence that the cause of the skin lesions was *H. capsulatum* was that in 18 persons the onset of rash was preceded by pulmonary histoplasmosis; of 12 persons whose first complaint was the rash, 11 were skin tested and all were positive, and seven had positive complement-fixation titers or X-ray evidence of pneumonitis as an indication of recent infection.

The fact that erythema was observed only during the second outbreak might suggest that it was related to exogenous reinfection. However, the residence histories of the patients indicated the opposite. More than half the patients with skin lesions were living in nonendemic areas outside the city during the first epidemic, and the remainder resided in areas along the periphery of town, away from the contaminated site.

It is probable that the patients with erythema nodosum and multiforme were not infected during the first epidemic and were susceptible to primary infection when they went shopping in the area in February, 1964. Among 102 employees of downtown stores, 95 per cent were positive to histoplasmin in April, 1964. Among the persons most likely to have been reinfected—those residing near the site during both outbreaks—there were no known cases of erythema.

SKIN LESIONS RARE

The question arises why skin lesions due to histoplasmosis have not been reported more often from endemic areas. An answer may be approached by calculation of a case-to-infection ratio. In a survey of 2,160 Mason City school children after the first epidemic, 29 per cent were positive to histoplasmin. A survey after the second epidemic showed that 49 per cent of 1,499 children were positive.

If adults comprise two-thirds of the population of the city (20,000 persons) and 15 per cent were histoplasmin sensitive before the outbreak, then 17,000 adults were histoplasmin negative. By ap-

plying the skin-sensitive rates in school children to adults, it can be seen that 5,000 adults were infected in 1962, and 6,000 adults in 1964. Erythema multiforme and erythema nodosum occurred in 16 residents, or a ratio of about three cases per 1,000 primary infections in adults.

If, as has been estimated, 500,000 new histoplasmosis infections occur annually in the United States, of which approximately 50,000 may be in adults, then approximately 150 cases of erythema lesions due to histoplasmosis occur in adults in the United States annually. Thus, it is not surprising that the association between histoplasmosis and skin lesions is frequently overlooked.



Role of Humoral Factors in Dumping Syndrome: Experimentally Induced Dumping Before and After Portal-Systemic Shunt

M. C. Geokas and I. T. Beck (Royal Victoria Hosp, Montreal) *Canad Med Assoc J* 94:1210-1212 (June 4) 1966

Although most patients have a satisfactory permanent result following partial gastrectomy for peptic ulcer, some experience severe and occasionally disabling postprandial distress, due mainly to the postgastrectomy dumping syndrome. Despite 50 years of extensive research the etiology of this syndrome is not fully understood, although recent evidence suggests that this is in part a chemically mediated phenomenon due to release of humoral factors from the intestinal mucosa during stimulation by hyperosmotic material. Animal experiments which have yielded evidence in support of the humoral theory were performed by several workers, but this communication is the first in which experimentally induced dumping has been reported in man, before and after portal-systemic shunt. The symptoms elicited add further support to the hypothesis that a humoral factor is responsible for initiation of the dumping syndrome.

Problems in the Diagnosis of Thyroid Disease*

Louis L. Sanders, M.D.**

Although the classical case of thyrotoxicosis or myxedema is readily recognized, the diagnosis of thyroid disorders is not always that easy. Indeed, many times the functional status of the thyroid gland can only be ascertained by the aid of various diagnostic tests. It is our purpose today to discuss some of these tests and how they can best be used in the diagnosis of thyroid disease.

First, however, we should briefly discuss the physiology of the normal thyroid gland and the mechanisms involved in the production of thyroxin. To begin with, the thyroid is essentially a passive endocrinologic organ. It is at the beck and call of the pituitary, and without secretion of thyroid stimulating hormone (TSH) from the pituitary, will decrease in function.¹ In hypopituitarism where there is no secretion of TSH, there is a decreased I^{131} uptake, a decreased output of thyroxin, and development of a state which is indistinguishable clinically from primary myxedema. Indeed in some cases of long standing hypopituitarism, the thyroid may so completely atrophy that it is no longer capable of responding to exogenous TSH stimulation.

Secondly, although the thyroid is under the control of the pituitary through TSH secretion, there is also a feedback mechanism by which the pituitary secretion of TSH is *in turn* controlled by the circulating level of thyroxin in the blood as is shown in Figure 1. Thus we have a circular relationship in which the thyroid is stimulated by TSH to take up iodide and secrete thyroxin, and the pituitary secretion of TSH is then controlled by the circulating level of thyroxin. Whenever the circulating level of thyroxin drops below a certain critical level, there is increased secretion of TSH as is shown on the right of Figure 1, in an attempt to bring the circulating level back

to normal. Whenever the circulating level of thyroxin is elevated, TSH secretion is reduced as is shown on the left of Figure 1.

Let us now discuss briefly the regulation of iodide metabolism. The two organs in the body that are concerned with the metabolism of inorganic iodide are the thyroid and the kidney. Iodine is absorbed from the gastrointestinal tract as inorganic iodide (I^-) and as such circulates in the blood. As is shown in Figure 2, this circulating iodide is taken up by the thyroid with great avidity against a concentration gradient; the concentration of iodine within the thyroid gland is approximately 25 times that of the plasma² and yet iodide is taken up by the thyroid gland. This thyroidal iodide trap requires the expenditure of energy and is under the control of TSH; it is essentially this function of the thyroid gland that is measured by the I^{131} uptake. After the trapping of iodide, it is next converted to molecular iodine by peroxidase enzymes within the thyroid. The molecular iodine then spontaneously iodates tyrosyl residues within the thyroglobulin molecule, forming mono- and diiodo-tyrosine. The structure of diiodo-tyrosine is shown at the top of Figure 2. Next, two diiodo-tyrosine residues held within the framework of the thyroglobulin molecule are then coupled together by means of coupling enzymes to form thyroxin, which is still firmly bound within the thyroglobulin molecule. Then by means of proteases the thyroglobulin is broken down and the thyroxin is released and enters the circulation. The free thyroxin in the plasma is then quickly bound to a specific globulin migrating electrophoretically between the α_1 and α_2 globulins. This thyroid binding globulin (TBG) which carries thyroxin to its peripheral site of action, prevents its loss by filtration through the kidney. It is this protein bound thyroxin that is measured by the PBI.

With this brief background in thyroid physiol-

*This work supported in part by Public Health Service Research Grant No. FR-49, from the Division of Research Facilities and Resources. Presented at the Arkansas Academy of General Practice Postgraduate Regional Seminar at Camden, Arkansas, July 15, 1965.

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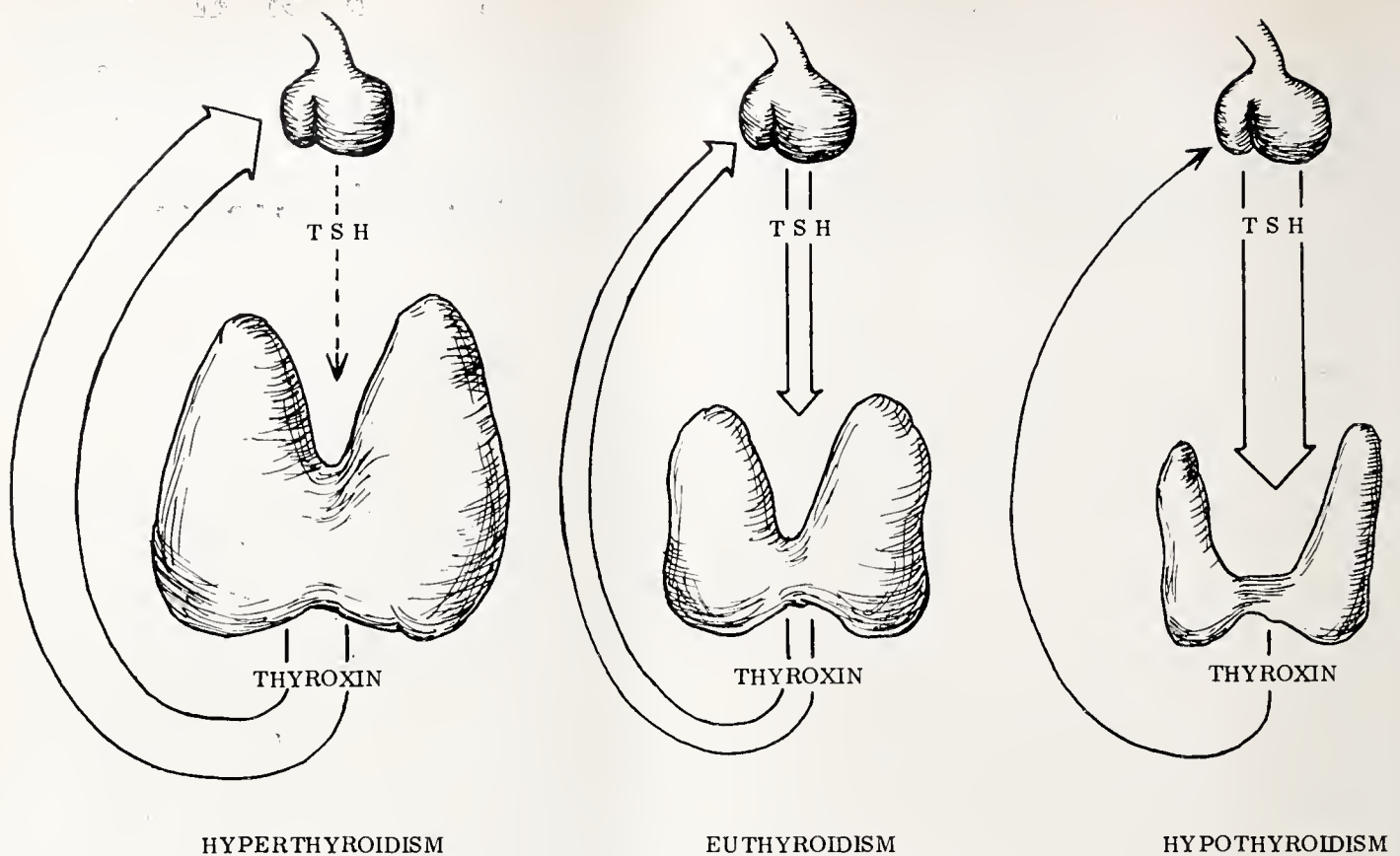


Figure 1. Pituitary thyroid interrelationships.

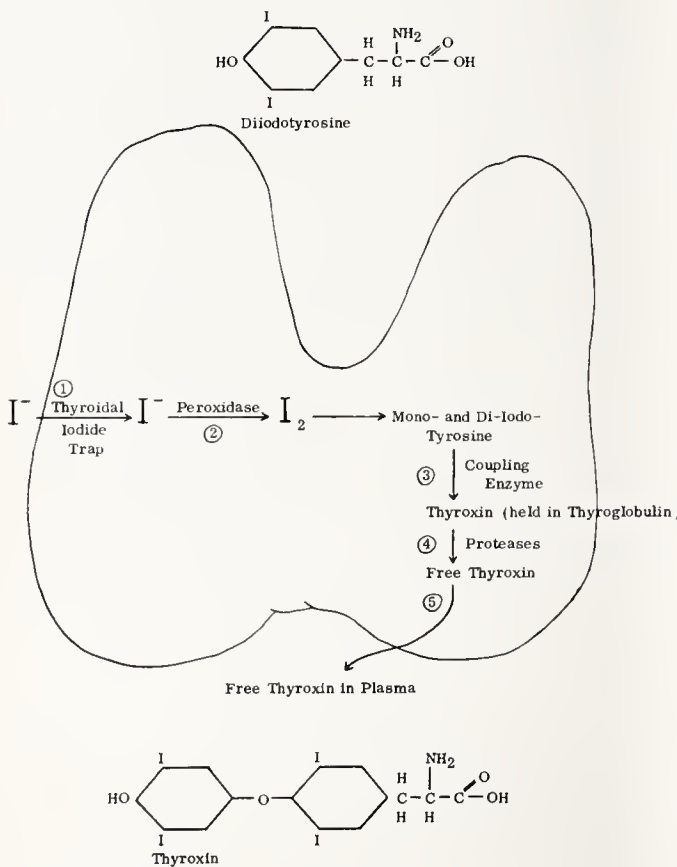


Figure 2. The thyroidal metabolism of iodide.

ogy, let us now discuss some of the diagnostic tests which are of value in thyroid disease.

The Basal Metabolism Rate (BMR)

One of the effects of thyroxin is to increase oxygen utilization. Thus, the measure of oxygen consumption or the metabolic rate has long been a test of thyroid function. With the advent of new and more direct measurements of thyroid function it has fallen somewhat into disuse but is still an excellent test when properly performed. The difficulty with the basal metabolic rate or BMR is obtaining a measurement of the metabolic rate which is truly basal. In most instances this is very difficult and in our own institution it is next to impossible. In order to obtain a truly basal metabolic rate, the patient must be hospitalized overnight and lightly sedated. He should then be undisturbed until being gently awakened by the technician early in the morning at which time the BMR is performed. In addition, the test should be explained thoroughly beforehand. It is no wonder that when, as sometimes happens, the patient is awakened by a stranger at the bedside who promptly places a mask over his face and instructs him to breathe, that the results do not reflect the basal condition. When properly done, however, the BMR can be very helpful, especially in following the progress of a patient under therapy for thyrotoxicosis. It should be remembered

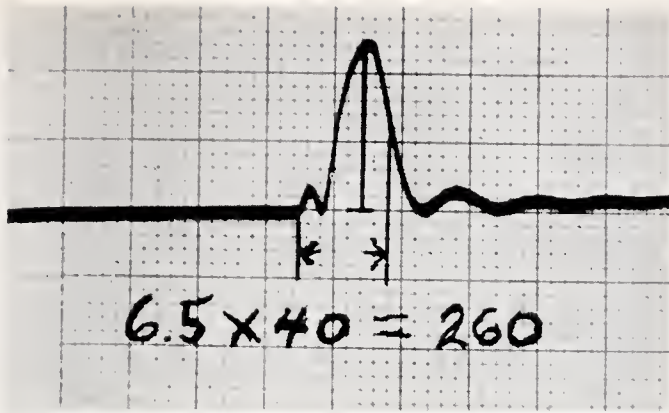


Figure 3. Calculation of half-relaxation time of a normal photomograph.

that almost all of the errors in the BMR determination (which can range from leaks in the machine to such things as a leakage of oxygen through a punctured eardrum) tend to exaggerate the oxygen consumption and therefore to give a falsely high BMR. A BMR of less than -20% therefore has considerable significance in the diagnosis of hypothyroidism. It also should be remembered that BMR's probably are not valid in markedly obese individuals.

The I^{131} Uptake

As we have seen, the thyroid is one of the main glands of the body handling iodide. Therefore, with the availability of radioactive isotopes of iodine it became inevitable that they would be used to determine thyroid function. The first thyroidal uptakes using radioactive iodine were done in the later 1930's and since then have become a standard test of thyroid function. The usual test consists of giving a small tracer dose of radioactive iodide intravenously and then counting over the neck at varying intervals up to 24 hours and determining the percent of the injected dose which is concentrated in the thyroid at that time interval. The most commonly used time intervals are 2 hours, when the uptake normally ranges between 4 and 10 percent, and 24 hours when the uptake normally ranges from 15 to 45 percent. Unfortunately, there is considerable overlap at both ends

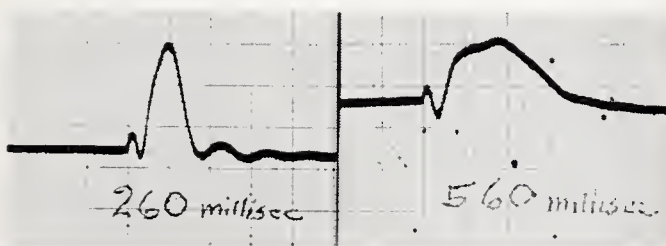


Figure 4. Comparison of normal (left) with hypothyroid (right) photomographs.

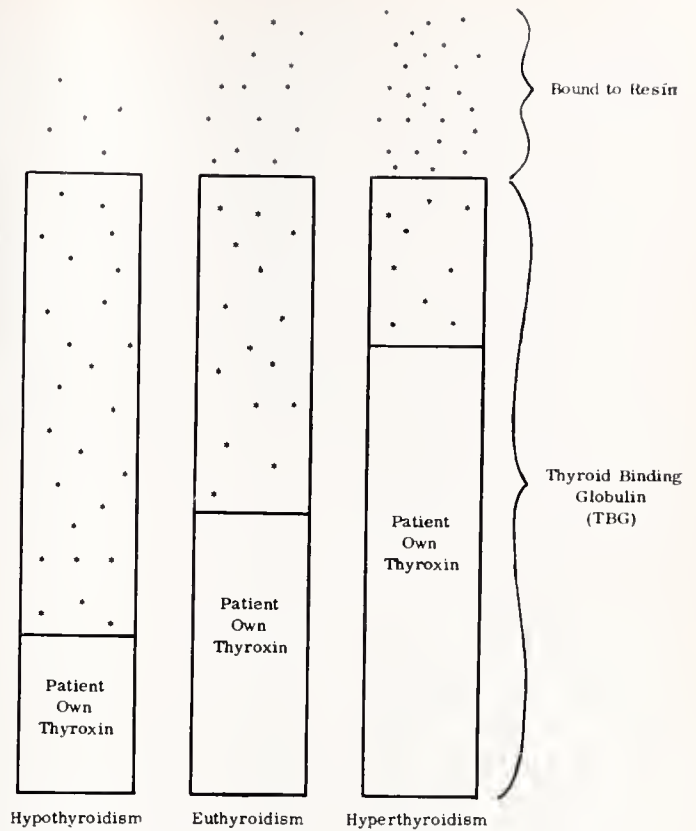


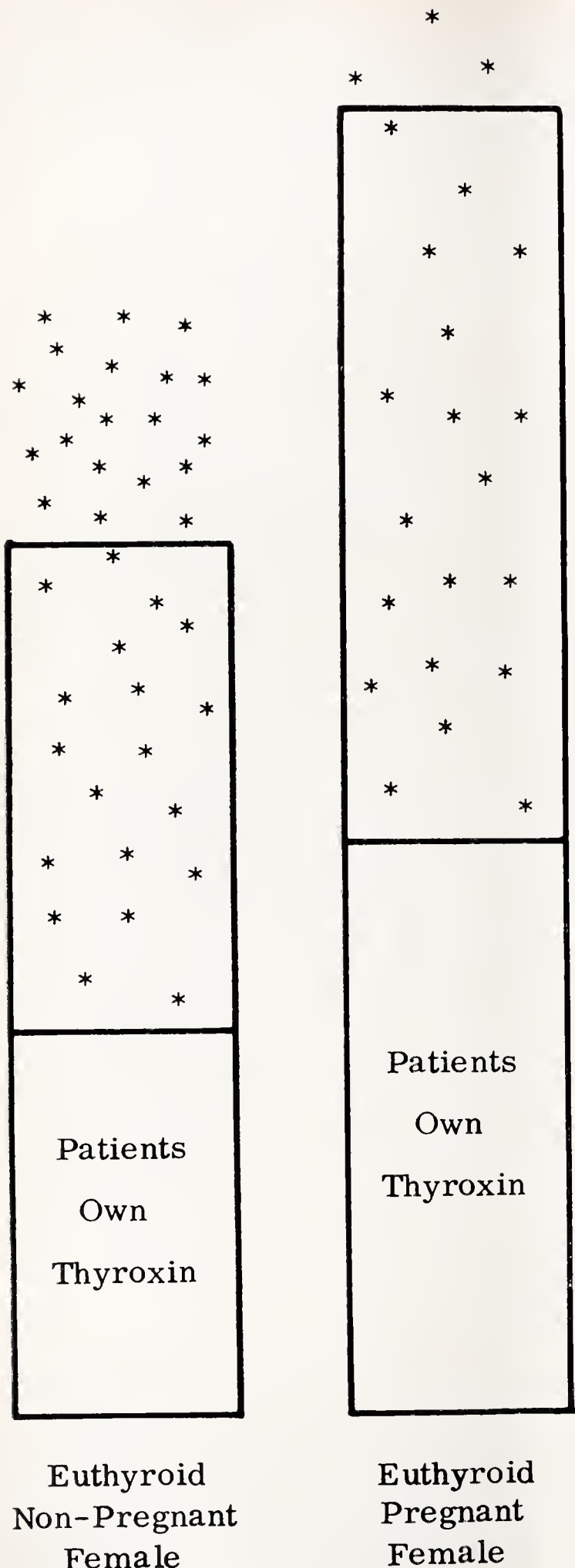
Figure 5. The resin-uptake test. See text for explanation.

of the normal range with hypo- and hyper-thyroid uptakes. This is especially true on the lower end of the range and therefore it is difficult to diagnose hypothyroidism with an I^{131} uptake alone. In addition since the other organ involved in iodide metabolism is the kidney, any renal disease delaying the excretion of iodide will make more available for uptake by the thyroid and will give a falsely high I^{131} uptake. This is why 24 hour uptakes are notoriously unreliable in patients with congestive heart failure where the renal blood flow is markedly reduced.

In addition to measuring the iodine uptake, radioactive I^{131} can be used to scan the thyroid and determine the presence of areas of increased or decreased uptake, the so called "hot" or "cold" nodules. Since areas of decreased uptake carry a somewhat higher risk of malignancy, this is often helpful in evaluating nodular goiters.

The Protein Bound Iodine

Probably the best single test of thyroid function is the protein bound iodine determination or PBI. Normally this measures the protein bound components of serum iodide which consist 95% of thyroxin or T_4 and 5% of tri-iodothyronine or T_3 ; inorganic iodide contributes an insignificant



amount to the PBI. PBI's are now readily available from many sources and when properly done are quite dependable. Unfortunately, many substances interfere with the PBI and give falsely elevated values. Some of these substances and the duration of their interference with the PBI in the euthyroid patient are shown in Table 1. In general these are inorganic iodides, organic iodinated radiographic contrast media of various types, drugs containing iodide, and finally conditions elevating the amount of thyroid binding globulin (TBG) which in turn also elevates the amount of

TABLE 1. Compounds giving falsely elevated PBI's.	
FALSELY ELEVATED PBI	
Compound	Duration of Elevation
Exogenous Inorganic Iodides	
SSKI	
Cough Syrups	1 month
Vitamin-mineral Preparations	
Drugs Containing Iodine	
Diodoquin and other amebicides	
Iodothiouracil (Iframil)	1 week
Radiocontrast Media	
Pantopaque	1 year
Lipiodol	1 year
Priodax	6 months
Diodrast	1 month
Cholografin	4 months
Telepaque	3 months
Orabilex	4 weeks
Urokon	3 months
Teridax	33+ years
Renografin	6 weeks—2 months
Conray	6 weeks—2 months
Pregnancy or Estrogenic Preparations	

thyroxin bound to the TBG. The most common of these later conditions is pregnancy. In the pregnant state, with the increased estrogen secretion, there is a rise in the TBG and a parallel rise in the PBI, beginning about the sixth week of gestation and lasting until approximately 6 weeks postpartum. Whereas the normal PBI ranges somewhere between 4 and 8 μ g%, in the pregnant euthyroid female it may range anywhere between 8 and 12 μ g%. Indeed a failure of the PBI to rise during pregnancy has been taken by some obstetricians to indicate inadequate estrogen production and the possibility of eminent miscarriage. An increased level of TBG may also be produced by antioviulatory or birth control pills. Most of these contain small amounts of estrogen which are sufficient to raise the serum TBG and thus give a false elevation of the PBI. This problem will undoubtedly become more widespread and increas-

Figure 6. Comparison of resin uptake in the euthyroid non-pregnant and pregnant patient.

ingly common in the future.

The Butanol-Extractable Iodide or Thyroxin-By-Column

The butanol-extractable iodide (BEI) or thyroxin-by-column test has value when it is known that the patient is taking inorganic iodides. The procedure used in these tests excludes inorganic iodides and a valid figure can thus be obtained where the PBI would be falsely high. It is also useful in states such as thyroiditis in which it is suspected that some other iodo-proteins such as thyroglobulin are circulating in the blood, since these abnormal iodo-proteins are not soluble in butanol. Otherwise, all statements made about the PBI are applicable also to this test. In particular, it is of no help if the patient has had organic iodides in the form of radio-contrast media (gall bladder series, IVP) since in these cases the thyroxin-by-column or BEI will be falsely high also.

The Photomotograph

The photomotograph is merely a device to measure and record the contraction and relaxation time of the Achilles' tendon. It has long been known that disorders of thyroxin production affect muscle function; there are increasingly brisk contraction in hyperthyroidism and markedly delayed relaxation in hypothyroidism. The currently commercially available device consists of a U shaped bar with a photoelectric cell across the arms of the U, which is plugged into a standard electrocardiographic machine and records on the EKG paper the contraction and relaxation of the gastrocnemius muscle. An example of the type of tracing produced and the calculation of the half-relaxation time is shown in Figure 3. There is an initial small hump which is the nerve conduction time and a rapid contraction and equally rapid relaxation of the muscle. The height of the contraction is measured, divided by 2, and the coincidence of this level with the downswing of the relaxation phase marks where a perpendicular line is dropped. The space between this and the onset of the nerve conduction time is measured; the number of squares is multiplied by 40 since each square equals 40 milliseconds. In this instance, the half-relaxation time is 260 milliseconds. Normal values range between 280 and 360 milliseconds. The photomotograph is of little value in the diagnosis of hyperthyroidism since there is a great overlap with the normal range. However, it is of distinct help in hypothyroidism

where there is marked prolongation of the relaxation phase of the muscle contraction. This is shown in Figure 4 in which a normal and markedly hypothyroid photomotograph are shown side by side. The hypothyroid range of the photomotograph is anything greater than 400 milliseconds. Although the absence of a delayed relaxation time does not rule out hypothyroidism, the presence of a marked delay in relaxation time is very strongly suggestive of a diagnosis of hypothyroidism. Certain neurological disorders, especially CNS lesions,³ and Diabetes Mellitus⁴ have been reported to produce delayed relaxation times.

The Resin-Uptake Test

A relatively new test of thyroid function is the resin or triiodothyronine-red cell uptake. This test has a marked advantage of depending on the specific binding of T_4 and T_3 to TBG and is therefore not affected by exogenous iodide, either organic or inorganic.⁵ The essentials of the test will be seen in Figure 6. The bar represents the normal amount of TBG present in the serum. As can be seen from the diagram, in the euthyroid state this is only partially saturated with the patient's own thyroxin. There are many open binding sites available. A known amount of radioactive T_4 or T_3 is added to the serum. This amount is in excess of that required to completely saturate all of the open binding sites on the TBG so that there will be some remaining free in the serum. Then, some type of particulate matter is added to bind the free radioactive thyroxin not bound to the TBG. This may be a resin with a peculiar affinity for thyroxin or it could be red cells which have been treated to make them take up T_4 or T_3 . The type of particulate matter is unimportant, just so it binds the free radioactive thyroid hormone. The specimen is then centrifuged. The serum poured off, the remaining particulate resin or red cells washed several times to remove all adsorbed serum and then the amount of radioactivity remaining on the resin or red cells counted and expressed as a percentage of the added dose. In hyperthyroidism, as is shown on the right in Figure 6, the patient's TBG is more completely saturated with his own thyroxin. Therefore, relatively fewer binding sites on the TBG are left unfilled and the greater part of the added radioactive thyroxin is free to be bound by the resin or red cells. Therefore, there is a higher resin uptake. In hypothyroidism, conversely, the patient's TBG is relatively unsatu-

rated, most of the added radioactivity will be bound to the TBG and relatively less will be available for binding by the resin or red cells. Therefore, the red cell or resin uptake will be lower. This test has several advantages. First of all, the radioactivity is added to the serum and not given to the patient. Therefore, there is no radiation hazard and the test can be repeated an infinite number of times and can be done at times when radioactivity is contraindicated to the patient. Secondly, it depends on a specific interaction between thyroxine and TBG and is unaffected by other iodides in the serum. The disadvantage of the test is that there is considerable overlap between the euthyroid range and the hypo- and hyper-thyroid range so that some hypothyroid patients give euthyroid results and vice versa. It is particularly poor in differentiating between euthyroidism and hypothyroidism. Still in certain instances this test can be very useful and in a case of a patient contaminated with a radio contrast material may be the only test which can be used.

Let us now see how some of these specific tests can be applied for problem cases of thyroid disorders. Suppose we have a patient who is somewhat nervous, has a tachycardia, perhaps some minimal weight loss, and the question of thyrotoxicosis arises. Suppose further that the I^{131} uptake and the PBI are both in the borderline high range, with the uptake being 40% and the PBI 7.9 $\mu\text{g}\%$ or even 8.1 $\mu\text{g}\%$. To determine whether the patient is truly hyperthyroid, we may take advantage of the normal feedback control of the thyroid by the pituitary shown in Figure 1 and use the T_3 suppression test. In the patient with a normal pituitary-thyroid relationship, if the thyroxine content of the blood is artificially raised by giving exogenous thyroxine, the pituitary TSH secretion will be suppressed and the I^{131} uptake will drop, usually to less than half of the control value. On the other hand if the patient is truly thyrotoxic as is shown also in Figure 1, the normal pituitary-thyroid relationship no longer exists, the pituitary is already suppressed by the elevated circulating level of thyroxine and further thyroxine given to the patient will have no effect on the I^{131} uptake. Therefore, failure of suppression of the I^{131} uptake by added triiodothyronine or thyroxine indicates thyrotoxicosis. Because of its more rapid onset of action, triiodothyronine is usually given rather than thyroxine, in doses of 25 μg . q.i.d. for 7 days.

There are helpful tests available at the other end of the thyroid spectrum also. In the patient who complains of tiredness, lethargy, perhaps some degree of cold intolerance, and who has a borderline low I^{131} uptake and perhaps a PBI of 4.1 or so, the question of possible mild hypothyroidism arises. Again we can take advantage of the normal pituitary-thyroid relationship. In a patient with normal thyroid function, addition of exogenous TSH will result in a marked rise in I^{131} uptake, and a marked increase in the thyroxine output by the thyroid gland. On the other hand, in a person who is hypothyroid, their gland is already under maximal TSH stimulation as is seen in Figure 1 and they are unable to increase their output of thyroxine or their uptake of I^{131} any further. Therefore, in such a patient the administration of TSH will not result in any rise in I^{131} uptake or any increased output of thyroxine. From a practical standpoint, an I^{131} uptake is obtained or a PBI is drawn, the patient is given 10 units of TSH intramuscularly; and a repeat I^{131} uptake is done or a repeat PBI drawn 24 hours later. If the I^{131} uptake fails to rise by an appreciable amount (at least 10 or 15 percent) or if the PBI fails to rise by more than 1 $\mu\text{g}\%$ (the usual average rise in a normal person is around 3 $\mu\text{g}\%$ ⁶), this indicates hypothyroidism.

A common difficult diagnostic problem is determination of hyperthyroidism in the pregnant patient. Many of the normal physiologic changes of pregnancy stimulate hyperthyroidism very closely. There is a hypertrophy and hyperplasia of thyroid gland so that it is readily palpable even in the euthyroid patient. There may be a physiologic tachycardia, the metabolic rate rises throughout the pregnancy, and as has already been mentioned there is a physiologic increase in the amount of thyroid binding globulin (TBG) and corresponding rise in the PBI. The I^{131} uptake is unaffected by pregnancy; however, because of the danger of radiation it is considered unacceptable to do I^{131} uptakes in the pregnant patient. Therefore, it is sometimes very difficult to determine whether the changes present represent an accentuation of the normal physiologic changes of pregnancy or whether indeed the patient may be mildly hyperthyroid. In this instance, the most helpful test is the resin uptake. Figure 7 illustrates how this test is helpful. The size of the bar again represents the relative

amounts of TBG in the serum. In pregnancy as we have seen, there is an increased concentration of TBG in the serum as is shown by the larger bar in Figure 7. However, the ratio of bound thyroxin to the unfilled binding sites remains the same as in euthyroidism. Thus, there are more unfilled binding sites than in the euthyroid patient. Therefore, relatively more of the added radioactive thyroxin will be bound to the TBG and less will be available to be bound by the red cells. The red cell uptake in the euthyroid pregnant patient lies somewhere between the euthyroid and hypothyroid non-pregnant patient.⁷ There is a wide and clear cut separation between this level and true hyperthyroidism. Therefore, hyperthyroidism in pregnancy should be easily diagnosed or excluded by use of the resin uptake.

In summary, we have reviewed briefly some of the commonly used diagnostic tests available in the field of thyroid disease. We have further

shown how these can be applied to specific instances of thyroid dysfunction. By the proper use of these tests it is possible to arrive at the correct diagnosis and therefore the correct form of therapy in any patient with thyroid disorders.

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Evoked Somatosensory Potentials in Man

S. J. Larson (Marquette University School of Medicine, Milwaukee), A. Sances, Jr., and P. C. Christenson *Arch Neurol* 15:88-93 (July) 1966

Evoked potentials from transcutaneous stimulation of the median nerve were recorded through scalp electrodes in 20 normal subjects. The amplitude of the evoked potentials was directly proportional to stimulus current intensity up to the point of visible muscle response, and thereafter, it failed to increase with increasing stimulus strength. Although responses of similar configuration and latency were obtained from corresponding electrode pairs ipsilateral and contralateral to the stimulus, the amplitude was greatest from electrodes in the vicinity of the contralateral motor and sensory cortex, indicating spread in a volume conductor. A comparison of recordings from serial examinations demonstrated evoked potentials of identical latency and reasonably constant configuration.

Memory and the Hippocampal Complex

D. A. Drachman (303 E Chicago Ave, Chicago) and J. Arbit *Arch Neurol* 15:52-61 (July) 1966

Five patients with known or presumed bilateral lesions of the hippocampal regions were studied to clarify the nature of the memory defect. Two new memory tasks were devised in which the length of a memorandum could be gradually increased from subspan to supraspan lengths. The patients' immediate memory spans (IMS) were normal compared with a group of 20 control subjects. However, the patients showed severe impairment in learning supraspan memoranda even after multiple repetitions. Thus, this indicates impairment of storage ability in patients with bilateral hippocampal lesions. No evidence of perseveration of errors was noted. These findings support a pluralistic theory of memory, since IMS is unimpaired while long-term memory (storage ability) is impaired when specific areas of the brain are damaged.

Chemotherapy of Urinary Tract Infections*

Wendell H. Hall, M.D.**

It is necessary in discussing the chemotherapy of urinary tract infections to dwell first on how one makes the *diagnosis*. In 1960 Kleeman reviewed the subject and described eleven clinical variants of acute pyelonephritis.¹ The presenting symptoms may be constitutional and may occur with or without fever and urinary symptoms. The findings on urinalysis are variable and may include albuminuria and hematuria, in addition to pyuria. Severe cases may terminate with malignant hypertension, progressive renal failure or acute renal shutdown.

A search for large pale cells and deeply stained "glitter" cells in urine sediments using the Sternheimer-Malbin stain may be useful in obscure cases.

Cultures of fresh urine are essential. Clean-catch, mid-stream specimens are entirely satisfactory in the male if quantitative plate counts are made. These can be easily made with a platinum loop that delivers a measured volume of urine. The urine must be chilled or frozen if it cannot be immediately inoculated.

In the female, mid-stream urine collections require more care than in males. Stamey found in *normal* women counts up to 10,000 per ml., especially if precautions were not taken, but few cultures contained over 100,000 organisms.² If mid-stream urines were collected with the patient on a cystoscopy table, contamination was greatly reduced. Colony counts were then usually less than 100 per ml. in healthy women.

Unpublished studies by Breitenbucher (1962) showed that, with simple cleansing of the vulva with "phisoderm" (no antiseptic), the colony count in mid-stream urine of uninfected females could be reduced below 1000.³ In only 1 of 308 normal women did the count exceed 100,000. On the other hand, the count was greater than 100,000 per ml. in $\frac{3}{4}$ of the mid-stream specimens from 125 women who had an active urinary infection. Breitenbucher found that in the normal female the low numbers of bacteria present were mostly staphylococci, but the urine of infected women

contained huge numbers of coliform bacilli, usually in pure culture.

The varieties of bacteria that cause urinary tract infections were well shown in the study of Coleman and Taylor.⁴ In uncomplicated infections of the lower urinary tract, it is widely recognized that *E. coli* will be found in more than 4/5 of the cases. But in patients with obstruction and chronic, recurrent infections, the more resistant bacteria predominate, e.g. *Aerobacter*, *Proteus*, *Pseudomonas*, and *Enterococcus*. Mixed infections are also more frequent in the complicated cases. Occasionally after treatment and especially with interlying urethral catheters, one may find yeasts in the urine but recent studies by Haley suggest that the yeasts come mainly from the lower urinary tract. In acid urine hyphae may also be found.⁵

It may seem obvious that urine cultures can be made better if there is no antibiotic or antiseptic in the urine. But this fact is often overlooked. The urine culture must be obtained before chemotherapy is given. Stamey compared the number of bacteria in bladder urine of 105 patients on antibiotics to the counts in 98 cultures of urine containing no antibiotic. Significant bacteriuria (over 100,000) was present in 65% of infected patients on no antibiotic as compared to only 50% on antibiotics.

Stamey (1965) has shown that in some infected males, suprapubic needle aspiration (SPA) will yield sterile bladder urine though voided bladder (VB₁) urine contains many bacteria. Mid-stream voided bladder (VB₂) urine in such cases often contains many fewer bacteria. But after prostatic massage, a late voided bladder (VB₃) urine will often show more bacteria. In a patient with prostatitis the post-massage voided bladder (VB₃) urine may contain a very large number of pathogenic bacteria on quantitative culture. After chemotherapy this bacteriuria will subside. In patients with urethritis Stamey finds that bacteriuria declines in the mid-stream voided bladder (VB₂) urine but will quickly rise if the patient stops his stream and voids again after a 3-5 minute pause (repopulation).

It is seldom that urinary tract infections are dif-

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fuse and symmetrical. Quantitative urine cultures obtained at cystoscopy and ureteral catheterization will show only infection of bladder urine in the majority of infected males. Infection of ureteral urine occurs only on one side about as often as it does bilaterally. Quantitative cultures of both urine and kidneys were done at autopsy in the Minneapolis Veterans Administration Hospital in 19 male patients with bladder neck obstruction⁶. Cultures of the kidneys were in agreement with urine cultures in 11 of the 19. It is widely agreed that in patients with pyelonephritis one is much more likely to find bacteria in the medulla of the kidney than in the cortex.

The treatment of infections of the urinary tract must take into consideration many factors, such as the cause of the infection, complications such as obstruction, the state of renal function, the etiological organism and the urine pH.

In 1955 Kass attempted to devise a therapeutic program for urinary infections with specific chemotherapy based on the sensitivity of the etiologic bacteria⁷. He found that *E. coli* were sensitive to a wide range of antibiotics, as well as to sulfonamides and nitrofurantoin. *Aerobacter*, on the other hand were generally resistant to many antibiotics, except for chloramphenicol, polymyxin B, tetracyclines and streptomycin. *Proteus* species likewise were generally resistant, except for *Proteus mirabilis*, which were sensitive to penicillin and chloramphenicol (now also sensitive to ampicillin). Other non-indole producing *Proteus* are sensitive to neomycin or kanamycin and little else. *Pseudomonas* are resistant to all but oxytetracycline, polymyxin B and (now) colistin. The *Staphylococci* occasionally found causing urinary infections are generally quite sensitive to penicillin G except in cases secondary to a bacteremia—the latter strains are often penicillinase producers and resistant to penicillin G. *Enterococci* are usually very resistant except to a combination of penicillin G and streptomycin or (more recently) ampicillin.

A good case can be made for the brief use of bactericidal antibiotics rather than drugs which merely suppress the growth of bacteria, particularly in resistant cases with good renal function. Stamey has published results of tube dilution sensitivity tests done with subcultures in order to determine bactericidal endpoints². Colistin proved the most effective bactericidal antibiotic, particularly for *E. coli*, *Aerobacter* and *Pseudo-*

monas. Oxytetracycline was the most widely effective agent in killing *Proteus*. *Streptococcus fecalis* was not regularly killed by any antibiotic tested—but Daikos (1964) has found that ampicillin killed 11 of his 16 strains and we have confirmed this finding⁸.

One of the many controversial considerations in the selection of an antibiotic for the treatment of urinary infections is the question—Which is the most important, the concentration in the blood, the urine or the tissue? Internists commonly argue that the blood or tissue level is most important. This is certainly correct in cases of pyelonephritis of hematogenous origin. In common with many urologists, Stamey believes that the urine concentration is most important. This seems reasonable for infections of the lower urinary tract and especially for infections secondary to obstruction. Stamey believes that, like other weak acids and bases, most antibiotics give levels in the kidney medulla equivalent to their urinary concentration. Further he argues that since penicillin G and Furadantin may be effective in pyelonephritis, though they give only very low blood levels and high urinary levels, the renal medullary concentration must be high just as it is in the urine. The observation is supported by the studies of Katz showing that the concentration of Furadantin in renal lymph is 2-3x higher than the blood level⁹. Similar observations have been made for penicillin G (by others). These considerations have persuaded Stamey to try penicillin G, Furadantin or oxytetracycline in cases of pyelonephritis and his results in a small series of carefully studied patients have been very good indeed. Chloramphenicol might be a poor choice for the treatment of obstructive pyelonephritis because only 10-15% of antibiotic is excreted by the kidney in an active form.

A word should be said about the use of antibiotics to prevent infection of the urinary tract, especially following urethral instrumentation. Dutton has shown that on a male urologic ward the majority of patients become infected with resistant bacteria—including *Staphylococci*, *Strep. fecalis*, *Klebsiella-Aerobacter*, *Proteus-Providencia* and *Pseudomonas*¹⁰.

Unpublished studies by Haglund at the Minneapolis Veterans Hospital have shown that prophylactic therapy with tetracycline did suppress sensitive *E. coli* infections, as expected, but unfortunately, resistant bacteria were found in large numbers in the urine within a few days and

occasionally these resistant bacteria were found in blood cultures⁶. No broadly effective preventive chemotherapy was found. Though sensitive bacteria were suppressed and disappeared from the urine, resistant bacteria were retained or were newly acquired.

It is concluded that infection of the urinary tract is to some degree inevitable with all inlying urethral catheters. These infections can be controlled best by use of aseptic techniques and closed drainage systems. The use of systemic antibiotics should be reserved only for specific treatment of active infections.

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Body Image Disturbance in Adolescents

W. A. Schonfeld (62 Waller Ave, White Plains, NY) *Arch Gen Psychiat* 15:16-21 (July) 1966

An evaluation of body image in a large series of adolescents with a variety of developmental and personality disturbances indicated that family attitudes are a vital influence. The intrafamily attitudes in over 200 youths with some disturbance of body image or self-concept were analyzed. Among the parental attitudes which influenced the adolescent's body image or self-concept are (1) both conscious and unconscious derogatory and

rejecting attitudes toward the youth, (2) parents attempting to resolve their own attitudes toward each other through their children, (3) or trying to find satisfaction for their own psychopathological needs through their children, (4) others projecting their anxieties over their own inadequacies, and (5) the wish to grow up and be big or beautiful being overemphasized in many youths through training and rivalry with their parents and siblings. Through an understanding of the adolescent's evaluation of his body image it is often possible to more fully understand some of the intrafamily dynamics.

Hospital Utilization*

J. Everett McClenahan, M.D.**

Mr. Chairman, Members of the Arkansas Medical Association and the Arkansas Hospital Association, your invitation to me to speak on the subject of Hospital Utilization is deeply appreciated by my colleagues of the Tenth Councilor District of Western Pennsylvania and I assure you it is with a great sense of gratitude that I address this audience.

First, let me make my personal position clear. I represent the Tenth Councilor District of the State of Pennsylvania Medical Society, an area constituting four neighboring counties. It has been within this area that my interests in the subject of proper hospital utilization and utilization of hospital facilities had its birth, and in which the latter has developed from a provincial colloquialism to one of national interest. It is the socio-economic trends of the medical period that has been the exciting factor to create interest in our work beyond the boundaries of the State of Pennsylvania rather than its quality or its unfinished product. While I am currently a Medical Director of a 600 bed hospital, this occupation was preceded by a period of thirty-five years of surgery and it has been in my busiest days as chief of a surgical department that my interest was developed. I state this for a very specific reason—to point up the fact that being busy in the practice of Medicine is no excuse to justify failure to become activated in the ancillary fields of Medicine.

In 1958, we in Medicine, in our area were having trouble with the United Mine Workers. They claimed we were keeping our patients too long, charging too much, giving inadequate therapy at times and threatened to limit the referral of their employees to only those hospitals which conformed to their idea of proper medical practices. The very foundations of voluntary medicine were being rocked and threatened. At the same time, the Blue Cross rates were rising and Francis Smith, then Commissioner of Insurance of the State of Pennsylvania, issued an adjudication requiring all hospitals in that State to create Utilization Committees for the specific purpose of helping control hospital costs. At that time he said:

"I do not believe that much has been done to

bring about the most efficient and economic management of our hospitals. In fact, I believe very little has been done. I do not believe that much has been done by hospital administrators, by Blue Cross organizations and by the Medical Profession to eliminate unnecessary admissions and to reduce prolonged hospital stays. In fact, with few exceptions, very little has been done. I do believe, however, unless action is taken immediately in both of the above regards, the whole scheme of prepaid medical care will be irreparably injured at the expense of millions of citizens of Pennsylvania resulting in severe personal and financial hardship and suffering."

As a result of this double-edged sword, the Pennsylvania Medical Society passed a resolution requesting all hospitals to form Utilization Committees. As a Tenth Councilor District Censor, it became my job to see that these committees were formed.

A small group of devoted and untiring physicians, set about this task. First we drew up "A GUIDE TO THE ESTABLISHMENT & FUNCTION OF MEDICAL STAFF UTILIZATION COMMITTEES," incidentally, revised and republished in the past few months. Using the GUIDE, we set out, over the next four years, to establish functioning medical staff utilization committees in each of the thirty-eight hospitals in our four county district. This Committee, appointed by the Staff President, is charged with concerning itself with all aspects of health care including costs and quality, through the review of discharged records of in-patients as well as the review of those hospital procedures adversely affecting the quality of care or the resulting costs. While we all are aware that many factors beyond the control of the physician frequently affect hospital costs, and care, nevertheless, we must recognize the physician does play some part in the control of costs and possibly 90% of the quality of care. It is the physician, for instance, who generally decides upon admission and orders diagnostic tests, drugs, and other therapy as well as being the single determinant of the duration of hospital stay. His decisions then do affect a certain percentage of hospital costs, (about 30-35%) and in an effort to prove the voluntary system of medicine entirely adequate to prevent misuse of hos-

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pital facilities and avoid intrusion of third parties, we urged the establishment of these committees, made up of staff physicians, varying in number from five to fifteen according to the size of the hospital, who would pass judgment on their fellow physicians rather than have a similar type of judgment passed by an unknowledgeable or an unqualified third party.

It was suggested in the beginning, the committee meet monthly and in its unsophisticated stage devote particular attention to the more common areas influencing ineffective utilization, such as:

1. Unnecessary admissions.
2. Excessive length of inpatient stay.
3. Delay in or overuse of x-ray, laboratory, and other diagnostic and therapeutic services.
4. Delay in consultation and referral.

This committee is also apt to ask itself such pertinent questions as:

1. Was the patient's admission to the hospital necessary?
2. Has the treatment of the patient, while under medical care been carried out as expeditiously as possible with a minimum of delay in the execution of prescribed treatment?
3. Was the patient discharged as soon as he was medically ready?

If any or all of these can not be answered satisfactorily, what factors account for this? For instance, does the individual physician recognize the importance of proper utilization and its impact on hospital costs and the individual's hospital bill? Has administration failed to appreciate the advisability of correlation of admissions with surgery, lack of which often adds two or three days to hospitalization? Has management recognized the importance of early hospital admissions to permit laboratory tests to be done on the day of admission? Has management adopted discharge policies that will permit early admissions? Has the organized staff established review committees on routine admissions, emergency admissions, and consultation delays?

The answers to many of the above questions are what utilization review committees are looking for. They then analyze their findings, determining:

- a. How many such cases are there?
- b. What factors contribute to their occurrence?
- c. What practical suggestions can be made to the proper authorities for avoiding these situations in the future?

The total number of charts to be reviewed are divided among the members, fifteen to twenty per physician, who make a study of these charts beforehand and comes to the meeting prepared to make his recommendations. While daily screening of cases admitted to the hospital, commonly used by utilization committees especially in hospitals with extensive bed shortages and long waiting lists may be desirable, nevertheless, because of the lack of sufficient information at the time of admission, it seems much more desirable that the utilization committees devote their major efforts to consideration of completed charts of discharged in-patients. The Committee commonly reviews:

1. The long-stay case for unnecessary utilization.
2. The short-term case for under-utilization and possibly poor quality care.
3. The case questioned or refused payment by pre-payment plans.
4. Cases by specific diagnostic or operative categories, to establish the degree of utilization.
5. Initiation of changes in procedure that may, in turn, result in improved utilization of both hospital beds and hospital facilities.

In 1960 and 1961, these committees had reviewed a total of some 43,830 cases, representing about 12.4% of all admissions to all thirty-eight hospitals in our area. The committee's studies are fundamentally those of a fact-finding body with no disciplinary function. Their findings are reported to:

1. The Executive Committee, on a monthly basis; and,
2. To the individual physician.

It is our feeling that all disciplinary action must be initiated within the individual hospital, either through and/or by the Executive Committee and the individual departmental head to whom the Executive Committee may refer the findings for action.

In our area, we have supplemented our utilization committees by two area-wide review committees, one for Blue Cross cases and one for commercial insurance carriers. These play an important role in our over-all utilization effects. I will discuss their function, if you so desire in the question and answer period.

The work of the utilization committees, I feel safe in saying, has resulted in many benefits, i.e.:

1. Increased awareness of the problems of unnecessary utilization.

2. Stimulation to arrange for discharge of long-stay patients or their transfer to appropriate facilities.
3. Discouragement of unnecessary admissions.
4. The freeing of beds and improvement of bed turnover.
5. Improvement of the quality of hospital charting.

I am of the personal belief that at the footstool of "proper charting" lies the solution to many of the problems of the utilization committee and, indeed, of utilization itself.

6. Elimination of questionable emergencies.
7. Better understanding by physicians of Blue Cross problems.
8. Development of more equitable and efficient admission and discharge procedures.
9. Increased cooperation with respect to the discharge hour.
10. Emphasis on the need to avoid delay in completing consultations.
11. Stimulation to work on newly discovered problems involving various hospital procedures, such as weekend laboratory coverage, operating room scheduling, and delays in tissue reports.
12. Increased interest of the medical staff members in working with hospital administration on various problems, and improved liaison between the medical staff and the administration.
13. Possible elimination of the need for building hospitals and/or additional wings for new beds.
14. Reduction in hospital costs.
15. Improvement of quality patient care.
16. Greatly increased communication between hospital administrative staffs for the purpose of comparing methods and means of improving the function of their committees and, incidentally, improving health care. Reliable word of this comes from administrators and chiefs of staff.
17. The fact that the public in general is now getting the impression that doctors themselves are attempting to do something about hospital costs. This is probably one of the most important single beneficial effects of the utilization committees, in our opinion. It is one of those intangible values that is very difficult to measure, but there can be no question that it is present, and, in great

measure. It has enabled us in our specific area, for instance, to deal on an equitable basis and in a friendly atmosphere with a steel union—something which, in my opinion, could not have been accomplished without this type of program. The public relations impact is tremendous.

The same insurance commissioner, Frank Smith, whose 1958 adjudication was referred to earlier in this paper and which, incidentally, caused country-wide eyebrow raising, in 1962 at another Blue Cross rate increase hearing, said, "What has occurred in Western Pennsylvania during the last four years illustrates what can be done through voluntary means for the benefit of the whole community when all interested groups work together toward a common objective." Mr. William H. Ford, President of the Hospital Services Association of Western Pennsylvania, in his testimony, made the challenging statement that there existed in Western Pennsylvania a program as comprehensive and as promising as any in the United States for assuring wise and effective use of hospitals and economical hospital operation. This statement remained unrefuted by any of the parties in the hearing and was supported by impressive testimony. At that time, he quoted from a former article of mine when he said, "There is stimulus in this program for the discharge of patients at the proper time, or for transferral to more appropriate facilities in long-stay cases. There is discouragement of unnecessary admissions. There is improvement in the quality of hospital charting. There is better understanding of pre-payment plan problems. There is increased cooperation within hospitals with respect to the discharge hour. And there is increased cooperation among hospital administrative personnel, physicians, and pre-payment plan personnel."

I believe it is important to any group of this nature to realize that there are certain things that utilization committees are not, i.e.: as Robert M. Sigmond, Executive Director of the Hospital Planning Association of Allegheny County, has so aptly pointed out—Hospital Utilization Committees are not:

1. "Police Bodies whose purpose is to ferret out and censor a few guilty physicians. Their primary objective is one of education. The fact is, that conscientious utilization committees invariably find that almost all physicians are, at one time or another, involved

- in some aspect of ineffective utilization. A day or even a half-day of delay in the discharge of most cases, or even most cases of one category, (i.e., Obstetrical) can have a much greater impact on utilization rates than the occasional case of ten or twenty days of excessive stay of any one case.
2. They are not scientific research committees attempting to measure the precise magnitude of over- or under-utilization.
 3. They are not agencies of the Blue Cross. They are concerned with all types of cases.
 4. They are not white-wash groups.
 5. They are not the entire answer to the utilization problems."
 6. They are not committees of physicians who are in any way attempting to dictate policies to administration. Investigations into hospital procedures that obviously affect hospital utilization and as a result hospital costs should not be interpreted by administration as anything more than an attempt by physicians to point out those areas which contribute to inefficient hospital use and for the purpose of suggesting to administration possible corrective measures.

A logical question from a group such as this would be, "What are the requirements for success of such a plan?" I would say that in order to work, such a plan must include certain definite ingredients, i.e.:

1. A firm belief in the benefits to the American public of health care provided by our system of voluntary medicine.
2. A group of dedicated physicians who are willing to devote time and effort to insuring success for the project.
3. A sympathetic administrator (without whom you simply can not be successful).
4. A completely cooperative Executive Committee.
5. A staff membership, educated to the point of having a fair understanding of where you are aiming and what you are trying to accomplish; and an appreciation of their stake as physicians and yours as administrators; and above all, a clear knowledge of the possible alternatives.
6. A fair and understanding third party, which accepts its gains as the co-beneficiary of the program but realizes that this is strictly a physician's activity.
7. A fair and unbiased utilization committee chairman.
8. A feeling by all physicians that they have a mandate to continue to improve the health care of Americans through a system which is guided and controlled by physicians.

By the end of 1962, it became apparent to our small group that the load being carried, both by the group itself and that of the utilization committee members, was entirely too great. It became more and more obvious that the greatest need of the Utilization Committee was for the development of a methodology for the retrieval of data from the charts of discharged hospital in-patients. Obviously, a staff would be needed to run such a project. We solicited funds chiefly from the leading industries in our area who, in turn, contributed almost a quarter of a million dollars for the development of a "HOSPITAL UTILIZATION PROJECT" to be activated for a three year period. Blue Cross contributed the use of its data processing equipment and sufficient help to run it. Our staff, at first, consisted of a physician director, a hospital administrator with research capabilities, as an assistant director, the best medical record librarian we could find and secretarial help. We developed an abstract sheet on which certain important data can be recorded from the chart; influenced our participating hospital record rooms to adopt the international method of coding, (ICDA) and convinced the administrators and medical record librarians to add to the latter staff, individuals who would be fulltime abstractors and others who would be fulltime coders, originally trained in the work by our staff medical record librarian. After the chart has been fully completed, the abstract sheet filled in and then coded, it is sent to the data processing area to complete the process. To each hospital is then returned, on both a monthly basis and a semi-monthly basis, two coded reports—one containing a listing by primary diagnosis and operations as well as a monthly death list; and one a listing of the work of each physician by diagnosis, and surgeon by operation. Coincidentally, Medical Record Librarians inform me the requirements needed to fulfill the work of H.U.P. has resulted in much better organization within the department; has, since the Joint Commission agreed to accept our coded diagnoses, eliminated cross-indexing, permitting the employee formerly doing that work to devote her time to other areas; and has raised, in the eyes of the medical staff, the

status of the Medical Record Librarian and her staff, due to the importance now being attached to the retrieval of informative medical data from the charts.

The coded listings are now returned to the hospital utilization committee for whatever studies they wish to make. Running through the listings, by either primary diagnosis or by physician, one quickly gets to the place where he can spot the unusual case and contrary-wise can eliminate from the reviews a lot of cases obviously not needing further study. As a time-saving device, for instance, I feel one could approximately in ten to thirty minutes obtain sufficient information relative to any one category of disease, for a six to twelve month period, from the coded record and know exactly what charts to pull for the purpose of review and what charts to leave alone.

In view of the constantly rising hospital costs and with little relief from this standpoint in sight, there is little doubt, in my mind at least, that both physicians individually and collectively as medical staffs, will be subjected to ever increasing demands to assess the quality of medical care. If this premise is accurate, these physicians, such as you and I, are wise to develop a method of such assessment that both meets the needs and is directed by physicians rather than by third parties, no matter who these third parties may be. A properly functioning Utilization Committee, thoroughly knowledgeable in both the objectives and the possible alternatives can, we believe, be the answer to this problem.

A physician's products are the result of his knowledge. His know-how and his time. The latter he never seems to have enough of, and quite understandably so. Utilization Committees require time that has to be borrowed from some other area. After several years experience with utilization committees, it has become apparent that we must not only return to utilization committees a certain coded report from which they can retrieve data with much greater ease and in much less time, but we must also set up some studies of our own which will stimulate the utilization committees in turn to make further studies of their own. With this in mind, we then, in the past year, have added to our staff a research assistant whose chief duties have been directed along these lines. For instance, our staff began a little over a year ago to return to all hospitals participating in the data processing, (22 of 38) studies of individual

disease categories in each of the hospitals and have sent the Utilization Committees interesting comparative stay rates. These we find have stimulated a deeper interest on the part of both the utilization committee members as well as the departmental heads. No one likes to be too high on the totem pole. Anticipating the request for comparative standards to be used as guidelines, we appointed nine physician panels in the various specialty areas, consisting of more than sixty of the highest qualified practicing physicians in our area. Using guide-lines themselves, patterned after the method of the Michigan Study, they developed for the fifty most common diseases, standards for admission, for therapy, and for discharge. Under no condition must these be used for anything but flexible guidelines in aiding an individual committee or departmental head while making a detailed study of a disease category in which their staff, or in which an individual staff member, has found themselves or himself out of line with others. We urge hospital utilization committees to make such detailed studies using fifty successive cases. We have charts available to help in such studies. At the completion of the study, almost invariably, they will reveal those areas creating the over or under-utilization features and an opportunity is now present for correction of the same.

Time has been running out—the three years being up on January 1st, 1966. We readily recognize the tremendous importance of this work, not only to our community but to the medical profession as a whole. We realize we still have barely scratched the surface. Our studies invariably bring us back to the individual hospital and the individual physician and their respective roles. For the former, we have been sending them graphic paintings of hospital profiles in utilization. Now we see the need to make available, individual physician profiles in utilization studies. The latter, we feel, when accomplished will eventually prove the validity of this work. For these reasons, our Steering Committee has voted to continue the Utilization Project for another three years and we are already in the process of attempting to raise sufficient money for its continuance.

Most everyone to whom we speak on this subject sooner or later wants to know whether we have or have not been able to show a favorable experience cost-wise. In our most recent report to our contributors, we asked Mr. Thomas Fitz-

patrick, Vice President of the Western Pennsylvania Blue Cross Association, to address himself to this point. I would like to quote from a portion of this report which he made at that particular time.

"Naturally, everyone concerned in utilization control has been interested in trying to measure the effects of all our activities.

'Recently, Blue Cross took a look at the experience of group members employed in the steel industry, because this gave us an easy way to compare a membership highly concentrated in Allegheny County with membership in other places. In comparing steel membership to all the rest of Western Pennsylvania's Blue Cross enrollees, we found that from 1960 to 1963 the admission rate per 1,000 steel enrollees declined 3/10 of one percent while the rate for all other enrollees went up 6.8 percent.

'In order to get another view of this situation, we looked at the experience of one major corporation which had members both inside and outside of Western Pennsylvania. From 1960 to 1963 the Western Pennsylvania enrollees of this company actually declined in admission rate per 1,000 by 7/10 of one percent. The admission rate for the corporation's employees outside western Pennsylvania increased 3½ percent for the same period. We examined the figures for average length of hospital stay and for patient days per 1,000 enrollees for steel vs. non-steel employees in Western Pennsylvania, and for Western Pennsylvania members of one corporation as compared to employees of this same corporation in the rest of the United States. The same picture was found.

'In a further effort to probe the meaning of these figures, we separated the maternity admissions from all non-maternity admissions because we knew that there had been a substantial decline in maternity admissions during this four year period. After taking out the maternity admissions the effect still remains. In other words, the rate of increase of hospital use for the membership concentrated in the area surrounding Pittsburgh either increased at a lower rate or actually declined as compared with the rest of Western Pennsylvania or as compared with one steel company's experience outside of Western Pennsylvania.

'These figures give us some confidence that the many efforts made to favorably influence hospital use in our area have borne fruit.' "

At present in our area 22 of our 38 hospitals are participating in our data processing aspect of Utilization Project and we are abstracting now and coding better than a 175,000 charts per year. These are individual discharges per year. There will be only a short time until this is materially increased.

Some of our hospitals have been abstracting all discharges for a sufficiently long period of time (six or more months) that we are now in a position to start a concentrated series of studies in four disease categories in each of these hospitals, over a period of the next twelve months. We are hopeful that the results of these studies will establish, beyond all doubt, that active utilization committees can be a source of educational information—(coming from retrieved data) to the individual physician; to the departmental heads for use in departmental reviews as required by the Joint Commission on Accreditation; and, for the Medical Staff as a whole, that has seldom ever been so readily available with such a minimum amount of effort.

Great emphasis has generally been placed by well meaning individuals, both lay and professional, that utilization committees are the answer to the spiraling cost of hospital care. This has placed the physician in an embarrassing position, the inference being that he is either abusing or misusing his privileges in one way or another. Generally speaking, this is the furthest from the truth. However, let us be completely honest with ourselves. All of us, one time or another, have been guilty of either over or under use of hospital facilities, although it may have been on a very innocent basis or even an unavoidable infraction. It is my firm belief that no physician over-utilizes hospital facilities intentionally. If he does over-utilize hospital facilities, it is generally either due to his particular pattern of medical care; his lack of knowledge of what proper utilization actually means and what it creates; possibly at times due to frank carelessness resulting from a time element; or as frequently is the case, due to factors completely beyond his control. At present per diem costs of hospital care, there can be no question that cutting our unnecessary days of hospital care can and does effect the individual's hospital costs, reflected in his bill. To this end, the physician should be cognizant of the factors influencing hospital bills for it is his patient who has to foot the bill. When and if

physicians cut unnecessary hospital stay across the board for all admissions, then possibly we will see evidence of benefits not only reflected in his individual bill but also in prepayment insurance premiums for all people.

It is my feeling, that most lay-folks and many physicians confuse the individual's hospital bill with spiraling hospital costs. No one questions their inter-relationship. However, it is apparent that many people either do not know or do not care to recognize the fact that while utilization committees can aid in cutting down unnecessary hospital utilization; that in so doing it will be reflected favorably in the patient's individual hospital bill; and may even eventually show a favorable reflection in his medical pre-payment insurance premium; nevertheless, it must be recognized, recorded and broadcast that successful establishment of proper utilization alone will not prevent hospital costs from rising in the future. It is not utilization alone that influences hospital costs;—it is an entirely different factor—namely, hospital wages that has been by far the greatest influence on rising hospital costs. The physician's role in influencing hospital costs is limited to his God given privilege of directing the hospital utilization factor of his patient and in view of the scientific advances and the economic and social changes that have and are taking place in our lifetime of medical experience it will be, in my opinion, a wise decision of the profession, both individually and collectively, to take measures of its own in order to see that proper utilization is a constant rather than variable factor.

We who feel the establishment of active hospital utilization committees is important and indeed a must if we are to preserve our voluntary system of medical care, recognize without question that over-hospital utilization does have some effect on hospital costs and that the physician has a very important role in helping to control the over-all picture of hospital costs from the standpoint of hospital utilization. Nevertheless, to justify the first portion of this last statement, that "the establishment of hospital utilizations is important and indeed a must," it seems to me imperative that we establish more reasons than the cost factor alone even though we admit this is a very important factor. We in Western Pennsylvania do, in fact, have other reasons. We are convinced that the establishment and the continued maintenance of proper hospital utilization is closely

linked with improved quality of medical care both to the community as a whole and to the individual patient.

Just how is proper utilization linked to quality care? Briefly, it has two quality care aspects:

1. From a community standpoint where proper utilization of hospital beds can conceivably make more beds available to people who are on long waiting lists—thus, medical care can be made available promptly to those individuals whom doctors have already indicated are in need of hospital medical care. From a community standpoint, there can be little question that this contributes greatly to the health of that community.
2. From a review of the retrieved data, an individual physician is very apt to improve his knowledge of proper patterns of medical care and, even more important, he not infrequently finds himself lacking in certain essential knowledge of proper care. For instance, in coronary occlusions; in handling of upper and lower intestinal hemorrhages; the more efficient use of fringe medical care facilities such as visiting nurses, nursing homes, etc.

The educational benefits from self-analysis of one's care of patients, as demonstrated to us by utilization committee's activities, can and will upgrade the medical staff away beyond your expectation. Still, to be successful, the physician must recognize these benefits to both his patient as well as to himself. While many objections have been expressed by many physicians over the country relative to the benefits of utilization committees, there are only three serious ones. As I see the pattern unfold, they are . . .

1. *The involved time of the individual physician*—and one should not and can not deny the validity of this objection. We in the Tenth Councilor District are now in the midst of a project which we hope will do away with a great portion of the required time of the individual physician functioning as a member of the utilization committee.
2. *The fear of being regimented.*

As long as the problem is kept in the hands of the physicians there need be no fear of such implications. From our viewpoint it is the establishment of functioning utilization committees that will actually prevent such regimentation rather than being the

igniting factor in its establishment.

3. *The unwillingness of the physician to subject the medical care of his individual patient, for whom he is responsible, to the scrutiny of inspection by his colleagues.*

He is quite willing to explore all other avenues to continue post-graduate education, including going great distances to hear medical essays, the material for which has frequently been gathered by retrieved data from a large number of case histories. Yet to the individual physicians, these are *his* cases that are being reviewed by utilization committees. It is apparently this personal aspect of the problem that makes him resistant.

To these objections I would say:—Is it better to allot some of your time to such efforts as we are exploring in the Tenth Councilor District, or should we neglect this phase and have some third party not only force it on us but one that will be directed by the third party; is it better to admit there are those who would gladly regiment our profession, and then take adequate steps to prevent it; or just forget it and permit our profession to deteriorate into that type of practice used in European countries; is it better to subject ourselves to the obvious educational benefits of self-analysis or have some third party analyze our work for us?

We believe the proper utilization of hospital facilities does have some influence on hospital

costs and an even greater influence on the individual's hospital bill; that individual physicians to a great extent control the individual patient's utilization of hospital facilities and in view of this the individual physician should make himself knowledgeable in those factors influencing hospital costs but particularly that factor commonly known as, Hospital Utilization; that more and more demands will be made on the physician by a greatly enlightened and more sophisticated public to routinely assess the quality of his medical care including utilization and that failure to comply with these public demands will produce an unfavorable reflection on our profession; that as the result of properly functioning utilization committees, if guided in the right direction, a tremendous amount of educational value can be obtained from the retrieved data that will not only improve the individual physician's care of his patient's but will up-grade the medical staff as a whole; that doctors, in view of the changing times, should recognize the benefits produced by such committees for their good as individuals as well as the medical profession as a whole; that utilization committees should be kept completely and entirely in the hands of the physicians and that third parties should never be permitted to take over their control; that properly functioning utilization committees conceivably can be one of the greatest tools to be used for the preservation of our voluntary system of medicine.



Effect of Lymphoid Cells From the Lymph of Specifically Immunized Sheep on the Growth of Primary Sarcomata in Rats

P. Alexander and E. J. Delorme (Chester Beatty Research Institute, Institute of Cancer Research, Royal Cancer Hosp, London) *Lancet* 1:1186-1189 (May 28) 1966

The growth of primary fibrosarcomata induced in rats with 3:4-benzpyrene was retarded by the injection of lymphocytes obtained from the efferent

duct of a lymph node in a sheep immunized with a piece of the tumor to be treated. The action of the heterologous lymphocytes was specific to the particular tumor used for immunization suggesting that reaction against tumor-specific antigens is involved. The cells responsible are believed to be medium-sized pyroninophilic lymphocytes which may stimulate the immune system of the host to react against the autochthonous tumor.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., Professor and Chairman

STACY R. STEPHENS, M.D., EDITOR

BLOOD DEMEROL STUDIES*

P. C. Reddin, M.D.

Moderate to high dosages of Demerol** are being used locally¹ for obstetric analgesia. This has provided an opportunity to study fetal and maternal blood levels of Demerol noting the ratio between the two and correlating these data with the infant's condition at birth.

HISTORY

Efficient complete obstetrical analgesia without fetal depression has not been realized.

Dämmerschlaf,² or twilight sleep, developed by Gauss in Friedburg in 1906, refers to a method of obstetric analgesia and amnesia obtained by using scopolamine and morphine. However, the high incidence of prolonged labor and neonatal apnea has plagued the obstetrician.

Demerol was introduced into obstetrics in Germany by Benthin³ in 1938 and was popularized in American obstetric circles by Irving of Boston Lying-In Hospital. Although Demerol was immediately accepted as a satisfactory substitute for morphine because of alleged lessened fetal respiratory depression, conflicting reports concerning the safety of this medication soon followed.

The literature is replete with clinical studies on Demerol in Obstetrics. Most are favorable, but some have reported adverse fetal depression.

Based on clinical observations, many authors suggested that the time of administration of Demerol was significant and advocated only early and mid-labor administration to avoid excessive fetal depression, while others reported late administration without hazard to the infant.

Objective studies^{4,5} have shown that the administration of even reasonable analgesic doses of Demerol (100 mg) resulted in a significant increase in the percentage of babies who showed delayed respiration, depressed oxygen saturation, decreased minute volume, and/or required resuscitation.

Following the introduction of Nalline as a narcotic antagonist, its use in obstetrics was and is being extensively studied. When given to the mother prior to birth, Nalline appeared to counteract the initial respiratory depression of even large doses of Demerol.

Utilizing methods of identifying Demerol in tissue, Apgar reported⁶ in the early 1950s on the transmission of meperidine across the placenta and found significant concentrations of the narcotic in the fetal plasma. This is the first work that we are aware of in which maternal and cord levels of Demerol were determined.

MATERIAL AND METHODS

Blood Demerol determinations were performed on two groups of mothers and babies — one obtained at a cooperating private hospital where dosages of Demerol varied from 300 to 600 mgms., and a second group collected at the University of Arkansas Medical Center. In order to make comparable studies similar amounts of Demerol were used at the Medical Center for this special study.

The private group of fifty mothers received Thorazine or Phenergan, Scopolamine, and Nalline, in addition to 300 or more mgms. of Demerol. Sixty per cent of these mothers were delivered under Cyclopropane anesthesia. Forty per cent were delivered under basal narcosis alone, many having episiotomy and repair without supplemental local

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**Meperidine—Winthrop Laboratories.

or general anesthesia. Fifteen (30%) of these fifty women received Pitocin stimulation of labor, usually to improve impaired quality of contractions following the administration of Demerol. All parturients were given 10 mgm. of Nalline intravenously about 15 to 20 minutes prior to delivery.

The seventeen University Hospital patients studied were given Demerol only, with Nalline given to the infant on evidence of respiratory depression. These mothers were delivered under low spinal (saddle block) anesthesia. This group was comparable in age and parity to the private patients, and the amounts of Demerol utilized were intentionally similar.

In both hospitals Demerol was administered intravenously and an attempt was made to include only normal women having normal labors, and delivering normal term infants without complications. All twins, prematures, breech, brow or face presentations were excluded.

The newborns in both groups were evaluated one minute after complete delivery and rated according to the Apgar system. Totals of 8 to 10 were considered normal, 5 to 7 moderately depressed, and 0 to 4 severely depressed.

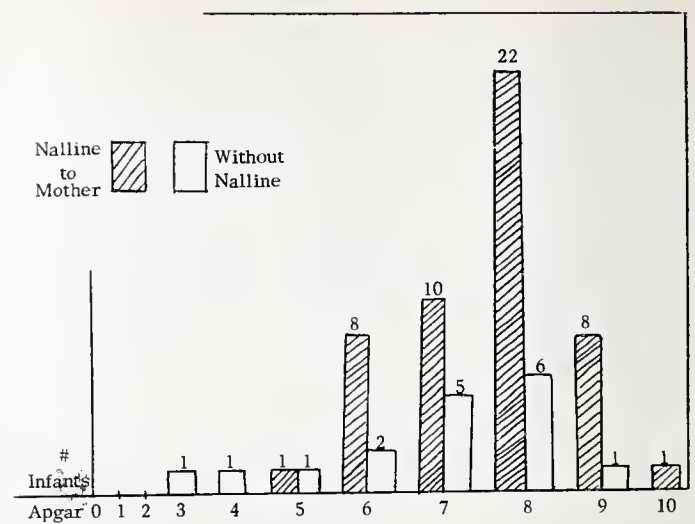
Demerol determinations were carried out according to the method of Burns, Berger, Brodie, et al.⁷ This procedure will detect concentrations of .3 mcg./ml. Serum, plasma, or blood is alkalized and the Demerol extracted in benzine. The benzine is washed in buffer, pH 7, to rid the sample of normeperidine. Methyl orange reagent (which combines with the Demerol) is next introduced. When exposed to hydrochloric acid the Demerol-methyl orange complex leaves the benzine and enters the aqueous phase and this is then read on a colorimeter.

RESULTS

In an effort to interpret these data certain clinical observations were made which included codification of all infants by the Apgar rating, with an evaluation of the effects of Nalline.

The blood Demerol levels of the mother and the infant were analyzed by total dose, mg./hr. of labor, and elapsed time since last dose and were compared with the fetal status at birth. Finally, the relation of maternal to fetal blood Demerol levels was studied.

Clinical appraisal by Apgar rating is shown in Graph 1. All patients in the private hospital series of 50 parturients received Nalline. None of



Graph 1: Comparison of Apgar Scores.

these infants were severely depressed at one minute. (In nineteen infants moderate depression was noted.) This represents a 38% depression rate. Cyclopropane was employed in 60% of the private patients. Since only half of the depressed newborns had been exposed to cyclopropane and half had not, it appears that the general anesthesia in this particular group was non-operative. All of the University of Arkansas series were delivered under low spinal anesthesia, and none received Nalline prior to delivery. Fifty-nine per cent were depressed (11% severely and 48% moderately).

Next, an analysis was made of the relationship of total Demerol dosage to the Apgar score, using 100 mg. increments of Demerol, with and without Nalline. As seen in Table I no correlation could be established.

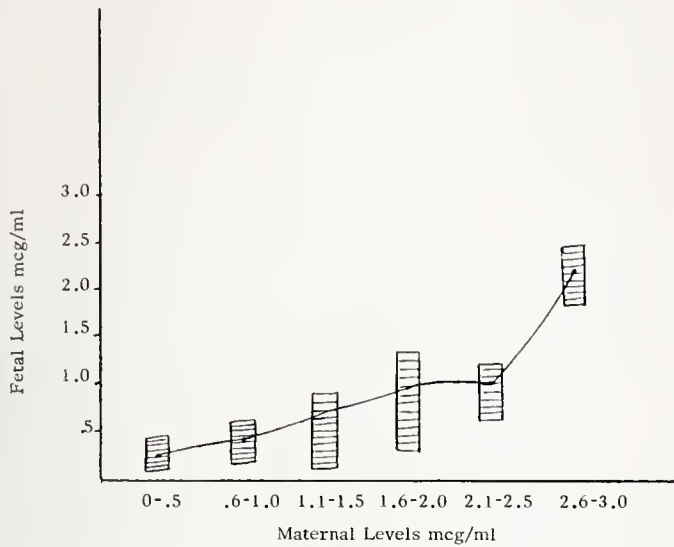
TABLE I				
Relation of Total Demerol Dose to Infant Depression				
Depressed Infants	<400	DEMEROL (mgm) 450-500	>500	Total
Nalline to Mother	13/30=43%	3/12=25%	3/8= 37%	50
No Nalline	8/14=59%	1/2 =50%	1/1=100%	17

We further analyzed the data on the basis of Demerol in mgs./hr. of labor utilizing the Apgar score, and again no clear-cut relationship appeared.

The data obtained from blood Demerol determinations was analyzed, and are presented in Graphs 2, 3, and 4.

By way of general information, the fetal blood level ranged from .3 to .6 mcg./ml. and the maternal level ranged from .2 to 27.6 mcg. The ma-

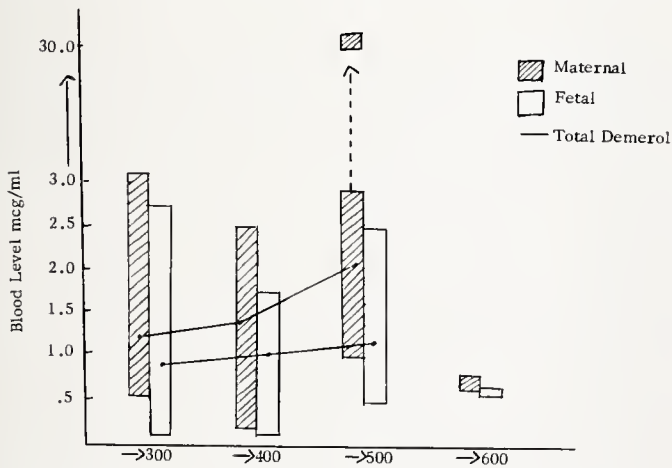
ternal and fetal levels were equal in four instances, and the fetal level exceeded maternal levels four times.



Graph 2: Relation of Fetal-Maternal Blood Demerol Levels.

In Graph 2 it can be seen that as the maternal blood level rises, so does the fetal level. The mean ratio of maternal to fetal levels after the first thirty minutes was 1 to .67. This compared with the previous work of Apgar, who found a ratio of 1 to .77.

The relationship of total dose of Demerol to maternal and fetal blood levels is depicted in Graph 3. As the total Demerol dosage is increased,

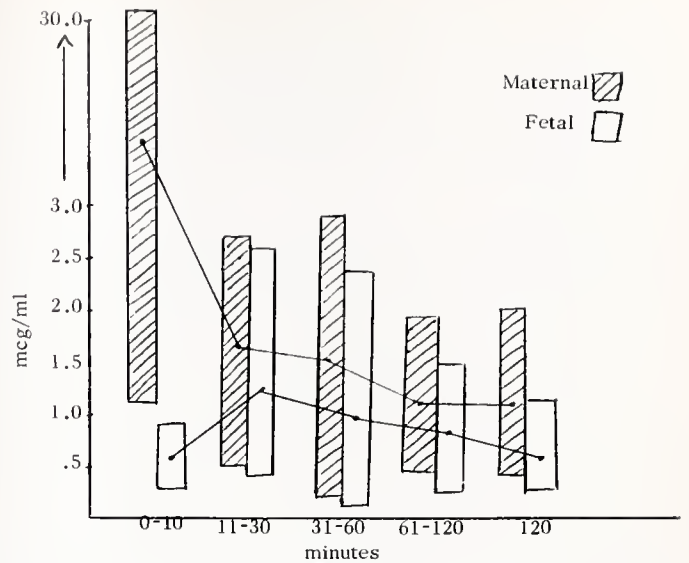


Graph 3: Relation of Total Demerol Dose to Fetal and Maternal Blood Levels.

there is a slight increase in the maternal levels without corresponding increase in the fetal level. The significance of this observation is doubtful.

We next analyzed the role of Demerol expressed as mg./hr. of labor on blood levels and no true correlation could be noted.

When the blood Demerol levels are correlated with time since the last dose, an interesting curve



Graph 4: Relation of Blood Demerol Level with time Since Last Dose.

(Graph 4) is derived. The peak maternal level is seen immediately, while the fetal maximum lags about thirty minutes behind. The mean rate of decline after the first thirty minutes is approximately 20% per hour. This suggests that Demerol leaves the blood stream at equivalent rates from the mother and infant, after the first thirty minutes.

A comparison of the blood Demerol levels of the mother and infant to the Apgar score reveals no correlation. The severely depressed infant exhibited an average blood Demerol level of 1.0 mcg./ml. and the normal infant average .8 mcg./ml.

DISCUSSION

The effect of the Thorazine-Demerol-Scopolamine combinations, as one would expect, was far superior to Demerol alone. The schedules here employed provided complete analgesia and amnesia, and in fact, anesthesia in 40%, which permitted episiotomy and repair without supplemental anesthesia. There was no demonstrable effect of the Nalline on the puerperal recovery of these mothers.

Certain general clinical observations on the infant are also of interest. In the group of private hospital newborns, all of whose mothers were given Nalline shortly before delivery, 38% showed clinical depression; these exhibited an Apgar score of 5 to 7, and none of these infants were severely depressed. In contrast, the women who did not get the narcotic antagonist, gave birth to babies classed as moderately or severely depressed in 59% of the cases. These infants were clinically more compromised, more difficult to resuscitate,

and in several cases were in critical condition.

These figures should be viewed in the light of Apgar's report⁸ on the scoring of the infants in 13,000 unselected vaginal vertex deliveries, where it was noted that 29% were moderately or severely depressed.

There is no evidence in this study that the addition of general or regional anesthesia had any effect on the infants of the narcotized mothers, as measured by the Apgar rating.

The analysis of blood determinations exhibited interesting and consistent data. Although there was wide variation in Demerol levels following the administration of identical amounts of Demerol in samples drawn at similar time intervals, certain trends remained consistent. Maternal level was highest in the first few minutes, then fell steeply in the first thirty minutes, from which time a more gradual diminution in level occurred about 67% of the mean maternal level. The total reach its peak until about thirty minutes after that of the mother, and then slowly declined, paralleling at a lower level the maternal curve.

It was also noted that the total dose had only a slight relationship to the amount of the narcotic detected in the blood, the elapsed time since the last dose being a much more critical factor. The mean fetal blood Demerol level was found to be about 67% of the mean maternal level. The total dose of Demerol, the dose calculated in mg./hr. of labor, and the blood level of the drug all failed to show any direct relation to fetal depression.

One is led to feel that it is Demerol in the central nervous system which depresses, and blood levels do not necessarily mirror the amount of narcotic in the brain.

CONCLUSIONS

1. Maternal and fetal blood levels of Demerol reached equilibrium within approximately thirty minutes after IV administration, indicating free transfer across the placenta. The maternal to fetal ratio was 1 to .67 in most cases.
2. No relation could be found between infant depression and cord Demerol level. Infant depression likewise showed no relationship to the total Demerol given, or the dosage calculated in mg./hr. of labor.
3. The blood Demerol level appeared to be more a function of time elapsed since the last administration than of total dose. Following a rapid initial drop, maternal and infant levels

of blood Demerol declined at an average rate of 22% per hour.

4. Heavy Demerol sedation without Nalline was associated with severe and moderately depressed infants in 59% of the cases.
5. In the group receiving Nalline, there were no severely depressed infants, but 38% were moderately depressed.

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Guest Editor—Richard B. Clark, M.D., Obstetric Anesthesiologist.

Commonly used drugs, even one as frequently employed as meperidine, require re-evaluation and re-appraisal from time to time. This paper brings some new information to light, and emphasizes some not generally known aspects of medication for Obstetrics.

It probably comes as a surprise to many that even reasonable doses of meperidine can be shown to have a depressing effect on the infant. Even though not apparent clinically, oxygen saturation, etc., are not as good in the medicated infant as in the unmedicated infant. True, in the normal infant, born of a healthy mother, this is something that can be overcome; but in the compromised infant, this may be another matter.

Even though there were no severely depressed infants in the meperidine-Nalline group, the 38% figure seems excessive. This is higher even than in Apgar's report of 13,000 unselected vertex vaginal deliveries, which included normal and abnormal deliveries, general and regional anesthesia, with and without sedatives and narcotics.

The figures given in the paper by Doctor Reddin should also be viewed in the light of Apgar scores achieved with continuous regional anesthesia. In an unselected series of 202 patients receiving continuous epidural anesthesia at the UAMC,¹ only 24% were depressed, twenty-one having Apgar scores of 0-4, and twenty-eight, scores of 5-8. The average Apgar score was 8.5.

One would expect that no correlation would be obtained between fetal blood level of Demerol and fetal depression, as fetal and maternal depression do not correlate² with blood barbiturate levels, either. Truly, the significant fact in depression is the CNS drug level, and not the blood level.

It may also surprise some to learn that the narcotic antagonist, Nalline, has some respiratory de-

pressing action of its own, as it is itself a narcotic. Its use exchanges the depressing effect of the narcotic for the depressing effect of the Nalline. If the dose of narcotic has not been large, nothing may be gained; or there may be some loss.³

It would seem apparent from the foregoing that the use of Nalline reduces the incidence of neonatal narcotic depression, but even less depression will be encountered with the use of regional anesthesia alone.

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Megaloblastic Anemia Caused by Methotrexate in the Treatment of Psoriasis

P. Borrie and P. C. Clark (Barnet General Hosp, Herts, England) *Brit Med J* 1:1339-1340 (May 28) 1966

A man of 60 was treated for 15 months for psoriasis with 2.5 mg methotrexate daily on alternate weeks. After one year the hemoglobin was 75%, and after 15 months it had fallen to 46%, PCV 25%, MCHC 28%, MCV 140 cu. μ . The white cell count was normal, but marrow biopsy

showed a megaloblastic reaction. Tests for liver function and malabsorption were normal as were the jejunal biopsy and serum vitamin B₁₂. He made a complete recovery in a month on folinic acid. Methotrexate in similar dosage was continued for a further six months without recurrence of the anemia. This is the first report of megaloblastic anemia apparently caused by methotrexate used in the treatment of psoriasis and it is possible that even in low intermittent dosage the drug may have cumulative effects.



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Dextro-amphetamine sulfate: Insomnia, excitability, and increased motor activity are common and ordinarily mild side effects. Confusion, anxiety, aggressiveness, increased libido, and hallucinations have also been observed, especially in mentally ill patients. Rebound fatigue and depression may follow central stimulation. Other effects may include dry mouth, anorexia, nausea, vomiting, diarrhea, and increased cardiovascular reactivity.

Meprobamate: Drowsiness may occur and can be associated with ataxia; the symptom can usually be controlled by decreasing the dose, or by concomitant administration of central stimulants. Allergic or idiosyncratic reactions: maculopapular rash, acute nonthrombocytopenic purpura with petechiae, ecchymoses, peripheral edema and fever, transient leukopenia. A case of fatal bullous dermatitis, following administration of meprobamate and prednisolone, has been reported. Hypersensitivity has produced fever, fainting spells, angioneurotic edema, bronchial spasms, hypotensive crises (1 fatal case), anuria, stomatitis, proctitis (1 case), anaphylaxis, agranulocytosis and thrombocytopenic purpura, and a fatal instance of aplastic anemia, but only when other drugs known to elicit these conditions were given concomitantly. Fast EEG activity, usually after excessive dosage. Impairment of visual accommodation. Massive overdosage may produce drowsiness lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse.



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The Pulaski County Medical Society — THE EARLY YEARS

Paul Harris*

Physician, author, and scientist, A. W. Webb, M. D., and his family had on the eventful date of June 14, 1866, adjusted their lives to the ways of a typical post-Civil War town after their move from the rustic settlement on the banks of Lake Chicot in southernmost Arkansas, to Little Rock.

Spending whatever time he could find when he was not actually caring for the sick during these frustrating years, made even more hectic by the ravages of the War Between The States, Dr. Webb the physician became Dr. Webb the scientific writer. Carefully and painstakingly, he began to document each new disease and the treatment he prescribed noting both his successes and failures.

The treatises, still in the original Spencerian long hand in which they were written, were now complete and bound in law calf. The hope for future publication and the realization of the pride of seeing his work in print, a desire common to all authors, remained in the back of Dr. Webb's mind. His dream of publication was never to be realized, but his book is preserved for posterity in the archives of the library of the University of Arkansas Medical Center.

Had not great tragedy struck the life of Dr. Webb on this late spring evening, the book may have been published. Members of the Webb family were in their home on the corner of Third and Scott streets when shots rang from the outside darkness. Two of the shots had taken two lives—Dr. Webb's and his son Mott's.

The earliest proceedings of the organization of what is now known as the Pulaski County Medical Society consisted of a memorial resolution honoring Dr. Webb. "Whereas—was on the night of the 14th ult. suddenly taken by the hands of assassins from his place with us, and, from the walks of men, to the tribunal of final accounts—" the resolution reads in part.

A reward was offered for the capture of the assassin in the next issue of the Arkansas Gazette. The ad was placed by the administrator of Dr. Webb's estate who was, by coincidence Dr. Lorenzo Gibson, the signer of the memorial resolution,

and the President of the Medical Association of the City of Little Rock and Pulaski County in 1866.

Tragedy was destined to strike again the ranks of this small professional organization in the year 1866. Less than two months after Dr. Gibson officially signed the Webb Resolution, Dr. Gibson himself had died, and a similar resolution was adopted honoring Dr. Gibson's contribution to organized medicine.

A history prepared by a specially appointed committee of the Arkansas Medical Society was copyrighted in 1943. The late Dr. Frank Vinsonhaler was appointed its chairman. According to this publication, the Medical Association of the City of Little Rock and Pulaski County was organized in 1866, four years before the first attempt to organize a state medical society. The exact date of organization and the charter members are not known, but since the proceedings of the association document the fact that Dr. Lorenzo Gibson was serving as president in July of that year, it is assumed that he was the first president of the organization.

There exists no other known record of proceedings of the organization than these two actions resulting in the memorial resolutions until the adoption and publication of the first Constitution and Bylaws in January, 1869. The association's president at that time was Dr. C. Peyton. Listed as other officers at the time of the adoption of the Constitution and Bylaws were: Vice president, Dr. R. G. Jennings; Secretary, Dr. E. V. Duell; Corresponding Secretary, Dr. C. Watkins; and Treasurer, Dr. W. A. Cantrell.

The relatively few committees necessary to carry on the work of the association perhaps is indicative of the theory that the larger the organization, the more committees necessary. Only four committees were designated in 1869 compared to more than thirty committees which are provided to function today. The four listed in 1869 and their members were: (1) Science and Progress Of The Profession—Drs. P. O. Hooper, M. K. Starke and J. G. Halliburton; (2) Grievances and Appeals—Drs. C. M. Taylor, W. Thompson, and R. B. King; (3) Printing, Finance and Claims—Drs.

*Executive Secretary, Pulaski County Medical Society, 510 Pulaski Street, Little Rock, Arkansas. This year, The Pulaski County Medical Society is observing its 100th anniversary.

S. C. Murphy, E. V. Duell and C. Watkins; and (4) Credentials—Drs. W. A. Cantrell, W. Haythornwhite and S. D. Dodge.

Having greater reader interest than the Constitution and Bylaws which have changed little in nearly one hundred years, is a code of Medical Ethics which was included in the same printed brochure as the Constitution and Bylaws.

Essentially, the two printed pages dealing with "Duties Of Physicians To Their Patients" are the same obligations recognized by the profession today in the area of patient care. Of some amusement, however, is the fact that at least three full pages of printed matter deals with the patient's obligation to the physician.

This era, many years before medical columns appeared in popular women's magazines to plague the lives of physicians, was not without its complications resultant from advice to the sick by the non-medical laity. Proof of this is evidenced in the code of ethics, Section 3 of Article II: "A patient, having made a selection of a physician, to attend upon himself or family, should not be influenced to change his physician from the advice of any of the self-constituted doctresses and meddling women, of whom we have quite a number"—.

Female modesty in the year 1869 presented problems to the attending physician which usually are not present in today's sophisticated society. The Code of Medical Ethics at that time admonished "Even the female sex should never allow feelings of shame or delicacy to prevent their disclosing the seat, symptoms and causes of complaints peculiar to them. However commendable a modest reserve may be in the common occurrences of life, its strict observance in medicine is often attended with the most serious consequences, and a patient may sink under a painful and loathsome disease, which might have been readily prevented had timely intimation been given to the physician."

Psychiatry was little known in those days and the importance of the therapy gained from unburdening problems unrelated to physical symptoms apparently was not recognized by the profession. Section 5 of the "Obligations Of Patients To Their Physicians" suggests: "A patient should never weary his physician with tedious detail on events or matters not appertaining to his disease. Even as he relates to his actual symptoms, he will

convey much more real information by giving clear answers to interrogatories, than by the most minute account of his own framing. Neither should he obtrude the details of his business nor the history of his family concerns."

During the same year 1869, a "Fee Bill" was established, apparently in an effort to standardize fees for specific procedures and services. Night visits were then, as now, costlier to the patient, and the time of year dictated the hour when day rates ended and night rates began. In spring and summer months, night rates went into effect at 9 p.m.; in fall and winter months the rates changed at 6 p.m. It is not known if these fees were binding on members of the Association or if they were established as a voluntary guide.

The formal organization of the Pulaski County Medical Society was by no means the beginning of the history of medicine in this area. Almost sixty years earlier, in 1807, Dr. Matthew Cunningham's diploma from the University of Pennsylvania had been handed to him after officials of the University had signed it. One of the signers of Dr. Cunningham's diploma had previously signed his name to another more important document—the Declaration of Independence. He was Dr. Benjamin Rush, the most prominent physician of his day.* Dr. Cunningham was destined to become the first doctor to locate in Little Rock, establishing his practice here in 1820. He had studied in France and England and had served as a surgeon in the Navy in the War of 1812. The remainder of his life was spent in Little Rock and both Dr. and Mrs. Cunningham are buried in Mt. Holly Cemetery.

The one hundred years between 1866 and 1966 have seen many illustrious and colorful physicians in the practice of medicine in Pulaski County. Today, with a membership of more than four hundred physicians, the Pulaski County Medical Society includes physicians whose qualifications are second to none in the country, and who occupy highly respected positions of leadership in scientific and specialty organizations on a national level.

The small determined group of physicians who in 1866 determined that "This organization shall have for its object, the promotion of medical science—" would be amazed—and pleased with the results one hundred years later.

*Dr. Cunningham's diploma bearing the signature of Dr. Benjamin Rush is in the possession of the University of Arkansas Medical Center Library.

COUNCIL MINUTES

9:30 A.M., August 14, 1966

Velda Rose Tower, Hot Springs

The Council of the Arkansas Medical Society met at 9:30 A.M. on Sunday, August 14, 1966, in the Velda Rose Hotel, Hot Springs. Present were: Whittaker, Shuffield, Thomas, Martin, Raney, Edwards, Gray, Millar, Burton, Sizemore, Wood, Kemp, McCrary, Fowler, Payton Kolb, Long, Price, Kahn, James Kolb, Hyatt, Verser, Wade, Jr., Ellis, Edgar Easley, Winston Shorey, Omer Bradsher, Mr. Warren, Mr. Harris and Mr. Schaefer. Business was transacted as follows:

When the Chairman of the Council called the meeting to order it was observed that a quorum was not present. Upon the motion of Whittaker and Edwards, those present resolved themselves into Committee of the Whole to transact business.

I. After brief discussion, the Committee of the Whole approved Executive Committee actions of May 27, 1966, and July 6, 1966, upon motion by Burton and Gray.

II. The headquarters office was directed to set up a definite roster of the order in which the councilor districts would host future conventions in accordance with the Executive Committee recommendation. The Tenth Councilor District is to be the host in 1967 and the other councilor districts are to take responsibility for the meeting in numerical order, beginning with the first councilor district in 1968.

The Chairman observed that a quorum of the Council was now present and called the Council to order. By unanimous vote, the Council approved the actions of the Committee of the Whole taken prior to this time.

III. Upon the motion of Fowler and Gray, the Council voted that the House of Delegates be advised of the new arrangements for councilor districts to accept responsibility for the Annual Session. Approval of the House of Delegates is to be requested.

IV. Upon the motion of Shuffield and Edwards, the Council voted approval of an expense account submitted by Mr. Eugene Warren for visits to various civic clubs throughout the state, speaking on behalf of the Arkansas Medical Society Speakers Bureau.

V. Upon the motion of Edwards and Gray, the Council voted to receive as information a letter written by Dr. John Busby, chairman of the

Annual Session Committee for 1966, regarding the arrangement of the Society's annual meeting.

VI. Upon the motion of Fowler and Burton, the Council decided to decline the offer of Mead Johnson to underwrite the expenses of a scientific speaker at our next convention.

VII. Discussed the proposal by the Chairman of the Sub-Committee of Immunizations, Dr. Wilbur G. Lawson, to furnish each member of the Society with an adhesive-backed "Immunization Schedule" reminder. Upon the motion of Shuffield and Raney, the Council voted to commend Dr. Lawson for his interest and activities of the committee and to approve his proceeding with the project. Authority was granted for the purchase and mailing of the schedules; the motion stated that the Council preferred that the Sub-Committee work with Dr. Easley of the State Health Department so that anything sent out could be approved by the Health Department and would be available to the public health nurses working in the counties.

VIII. Upon the motion of Burton and Wood, the Council authorized expenses to send a representative to an AMA Conference on Immunizations in Atlanta, Georgia, on October 17th. The Council directed that Dr. Lawson, chairman of the Sub-Committee on Immunizations, be invited to represent the Society.

IX. By motion of Fowler and Wood, the Council voted to direct the president and the Executive Vice President to take the necessary steps to hold the second annual Officers Conference in connection with the House of Delegates meeting tentatively planned for December of 1966.

X. A brief discussion of the Casey Bill from California was held. The Casey Bill designates the State Health Department the intermediary for the Title XIX Program. Upon the motion of Edwards and Gray, the Council voted to instruct the Legislative Committee to study the Casey Bill and the desirability of designating one State agency to administer Title XIX. The Legislative Committee is to be asked to make recommendations to the Council prior to the December House of Delegates meeting.

XI. The Council received a request for legislative support from the Licensed Practical Nurses' Association. After considerable discussion of the shortage of nurses and the increasing need for

nursing care, it was decided to take no official action but to request Dr. Shmfield, as chairman of the Legislative Committee, to discuss their legislative program with the Practical Nurses' Association.

XII. Dr. McCrary described the Vocational Nurses Programs in operation in Hot Springs in cooperation with the public schools. It was suggested that the Committee on Liaison with the Nursing Profession confer with Dr. McCrary on this program with a view to suggesting it to other school districts.

XIII. A communication from the Mental Health Association suggesting joint programs between that association and the Medical Society was considered. Upon the motion of Payton Kolb and Wood, the Council voted to refer the suggestion to the Committee on Mental Health.

XIV. A discussion of the probable impact of Title XIX Programs in Arkansas was held. Upon motion of Edwards and Fowler, the Council voted to request the Executive Committee of the Council to continue to serve as liaison with the Welfare Department and directed the Executive Committee to designate two representatives of the Society to travel to Washington in October as members of the Advisory Board to the Welfare Department.

XV. Requested the Medicare Negotiating Committee to work for an increase in Medicare fees.

XVI. Dr. Kahn, editor of the Journal, requested an increase in the salary allowance for his journal assistant. Upon the motion of Long and Sizemore, the Council approved an increase.

XVII. The Council received a request that the Arkansas Medical Society co-sponsor, with the Arkansas Tuberculosis Association, a study of

tuberculosis programs in Arkansas. The study would be conducted by experts from outside the state selected by the Tuberculosis Association. Upon the motion of Kemp and Edwards, the Council voted to thank the Tuberculosis Association for their invitation and to advise them that the Council would wish to see a copy of the report to be written before making a decision to co-sponsor it.

XVIII. Dr. H. W. Thomas turned the chair over to President L. A. Whittaker to discuss possible future changes in the relationship between Arkansas Blue Cross-Blue Shield and physicians in Arkansas. Dr. Thomas presented his remarks as the subject for further thought and discussion and not as a suggestion for any action at this time.

XIX. Dr. Lewis Hyatt suggested to the Council that some allowance be made for travel expense of the president during his term of office, both within the State and outside of it. Upon the motion of McCrary and Burton, the Council voted to authorize travel expenses for the president for reimbursement upon his presentation of expense accounts up to a total of \$1,000 per year.

XX. Dr. C. C. Long, as chairman of the 21-Man Committee to advise Blue Cross-Blue Shield in the administration of Public Law 89-97, reported on the progress of that committee.

XXI. Upon the motion of Burton and Raney, the Council voted to contribute \$1,000 to the Arkansas Political Education Committee.

The Council adjourned at 1:30 p.m.

APPROVED:

H. W. Thomas, M. D.
Chairman



Effects of Clofibrate and Dextrothyroxine Singly and in Combination

M. M. Best and C. H. Duncan (511 S Floyd St, Louisville) *Arch Intern Med* 118:97-102 (Aug) 1966

The serum cholesterol and triglyceride levels of 12 euthyroid patients with coronary artery disease were studied during four periods of four months each. The treatment periods, in varied order, con-

sisted of the daily administration of 1.5 mg of chlorophenoxyisobutyrate (CPIB) and 4 mg of D-thyroxin in combination and a placebo. Both CPIB and D-thyroxin resulted in a significant ($P < .01$) reduction in the serum cholesterol, and the combination was significantly more effective than when either was used alone. CPIB was more effective than D-thyroxin in reducing serum triglycerides, and the combination had no greater hypotriglyceridemic effect than did CPIB alone.

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

ANSWER ON PAGE 203



HISTORY: Three-month-old Negro female with rhinorrhea. Refused to move right arm and both legs. X-rays of the upper extremities show identical changes.



ELECTROCARDIOGRAM

OF THE MONTH

AGE: 2 SEX: F BUILD: — BLOOD PRESSURE: 90/60

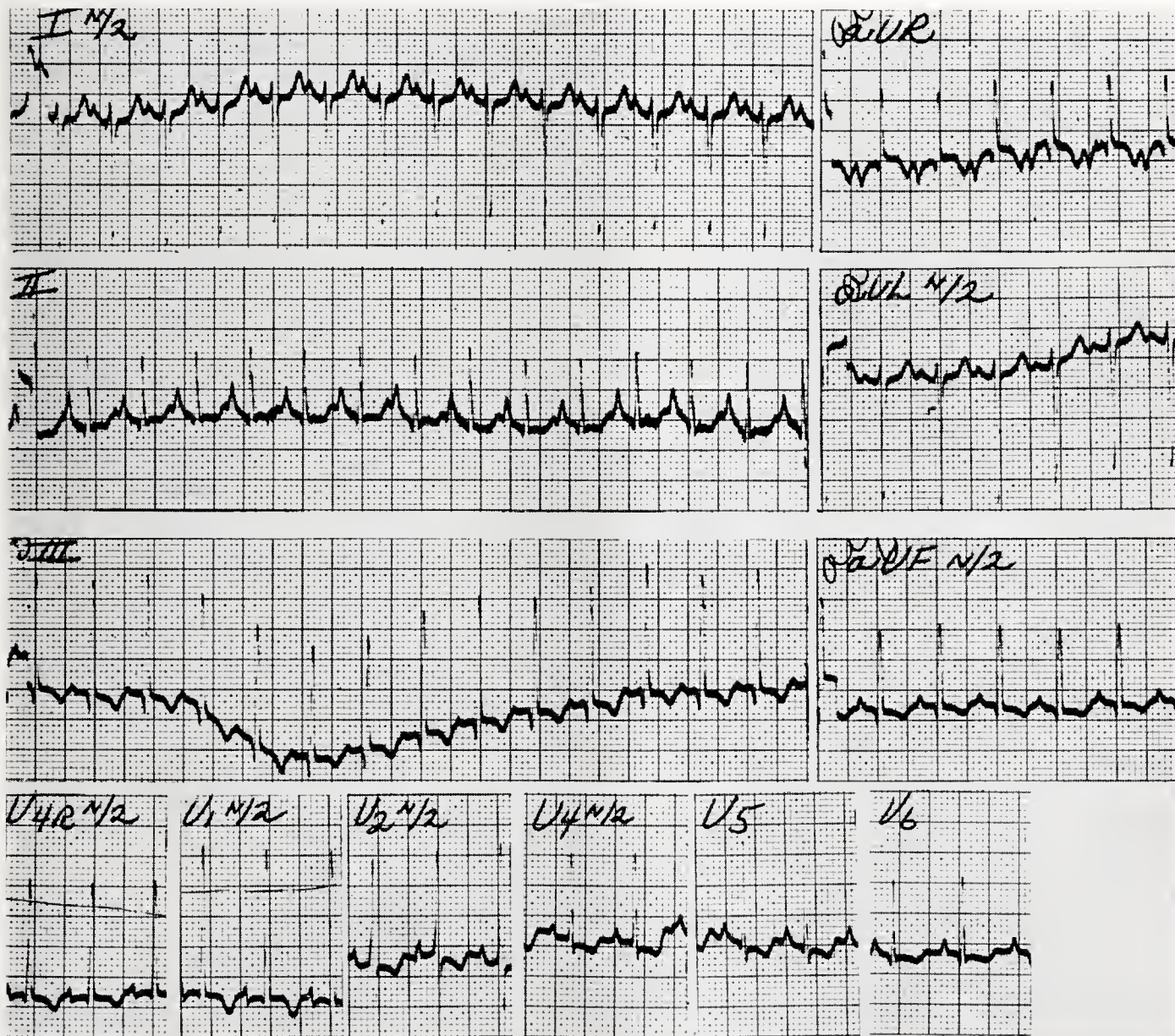
CARDIAC DIAGNOSIS: Pulmonary atresia with (?) Atrial Septal Defect

OTHER DIAGNOSES: None

MEDICATION: Digoxin, amount not known

HISTORY: Pre-op tracing

ANSWER ON PAGE 203



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine



FAMILY PLANNING IN ARKANSAS

R. C. Ramsay, Jr., M.D.*

A Chinese proverb best illustrates the State Health Department's feeling toward Family Planning:

"If there is harmony in the home there will be order in the state, if there is order in the state there will be order in the nation, if there is order in the nation there will be peace in the world."

In all known cultures a small group called a family binds itself together to perform the task of reproduction, economic sustenance and socialization of the children brought forth by this marriage. It is true that the structure of the family may vary from group to group. It is also true that in all cultures the lower income group have the most problems and these are increased tenfold by a large family. This large family is caused by the parent's poor knowledge of reproductive techniques as well as no available clinics to help them in their need. The American Medical Association, in December 1964, stated that "The Medical Profession should accept the major responsibilities in matters related to human reproduction as it affects the total population and the individual family." It also stated that in discharging the responsibility the physician must be prepared to provide counseling and guidance when the needs of their patients require it or to be able to refer the patients to appropriate persons involved in family planning. Since that time you as physicians have accepted this challenge and are becoming more and more active in Family Planning in the State of Arkansas.

As most of you know, we have come a long way since 1916 when Margaret Sanger founded this nation's first Family Planning Clinic. According to the records obtained from the late Mrs. Ed Cornish, Arkansas began its effort in Family Planning in 1931. The Association for Family Planning was established permanently through the interest of Rabbi R. F. Sanders and of the late

Dr. Hay Watson Smith in their support of Mrs. Ed Cornish, as well as others too numerous to name in this short summary. As you might well expect there was an intense struggle during these early days to acquaint the people of Arkansas with the need for family planning. Private funds were the only available funds to finance a clinic, giving the patients a choice of pessary, jelly, suppository, sponge or tampon and a type of contraceptive powder. Patients attending these clinics had to have a high motivation because of the intense feeling during this time against any information regarding reproduction. In the last 10 years the people of Arkansas have become more and more concerned about the increased problems of the families with poor education. In 1959 the American Public Health Association declared population problems a major public health concern and this paved the way for our Maternal and Child Health Division to begin the Family Planning Program associated with a comprehensive medical care program in the local health departments. In June 1964, the State Medical Society approved Family Planning in the local health departments, each clinic being established at the request of the local county medical society. The clinics are staffed by local physicians in private practice who request to serve in the clinic. The clinics are as designated—really Family Planning Clinics. Parents with infertility problems can be referred to these clinics, as well as problems of birth control. The objects of the Family Planning Clinics in Arkansas are to enable the individual families to have the number of children they want and can economically care for. This prevents the impossible complex situation which frequently causes the father to leave the home in search of a better way of life. The sustained post-war baby boom started in 1946, produced social problems as these children grew to an older age. The increasing need for jobs and college education awoke the

*Director, Division of Maternal and Child Health, Arkansas State Health Department, Little Rock, Arkansas.

public to the need of population control. The Maternal and Child Health Family Planning Program makes available all forms of contraceptive devices so the families can choose one compatible with their beliefs and needs. Counseling for families is provided by the physician and the local public health nurse in the various clinics. There is no effort made to force information on families not seeking our services.

I have some comments from mothers visiting our Family Planning Clinics, in order to give you an idea that our program is reaching the people with the greatest need. One of the mothers 26 years of age with 8 children made this comment, "My husband only works in the fields, we can't afford any more babies". "I just wish that we had this program 10 years ago", said a 31 year old mother with rheumatic heart disease with 6 living children ranging from 3 months to 11 years of age. She was receiving her welfare check when she found out about the Family Planning Program. She told the nurse that her local physician had indicated to her that having additional children would give rise to serious complications regarding her rheumatic heart disease. In 1964, a study was carried out in one county in Arkansas involving 294 mothers with income less than \$2,000 a year. There were 1,600 pregnancies overall in this group. The average 33 year old woman had 10 children, the average 40 year old woman had 13 children. There were two mothers in the 44 year old age group, each one of these mothers had 17 children. It is with this group of mothers and children that all of our great society programs will be focused. The basis for all of our mental health programs, mental retardation programs, nutritional programs, poverty or headstart programs is Family Planning.

A recent paper by Joseph P. Beasley, M.D., reinforces the thoughts on how important public health education is to the low income group. One patient in answer to a question about reproductive physiology stated, "Pregnancy is a freak of nature, if nature wants you to be pregnant, you will become pregnant". A 29 year old female with 9 children stated that "the way to prevent pregnancy is to avoid relations 3 days before and 3 days after your periods stop". These are the type of patients that were involved in a survey conducted by the University of North Carolina Medical Center. 85 percent of the patients in these lower social groups that had unplanned and un-

wanted pregnancies were both anxious and willing to accept contraceptive advice. These families want help and they deserve our concerted effort rather than criticism in a time when they are over-burdened with financial as well as family problems.

In October 1964, the Maternal and Child Health Family Planning Programs were launched in our local health departments. Dr. J. T. Heron, State Health Officer, announced the beginning of Family Planning in local health clinics. Referrals to our clinics are made by local physicians, welfare department, poverty programs, nurses and health services. The clinics meet weekly, bi-monthly or monthly depending upon the clinics personnel's time and number of applications to the clinics. The patient must request family planning by written consent.

FAMILY PLANNING CLINICS IN ARKANSAS

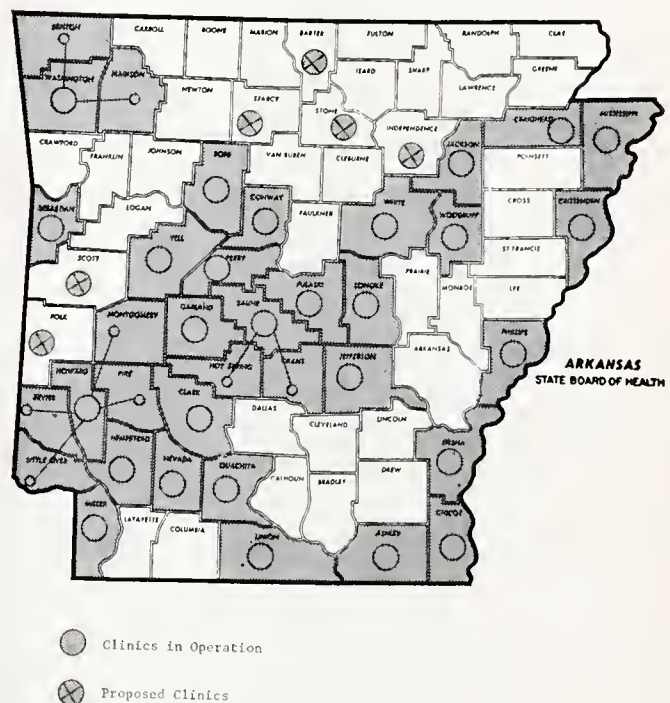


Figure 1

In Figure 1 you can see how 37 counties are served by 30 Family Planning Clinics, in local health departments. Three of these clinics are designated as regional clinics and take care of adjoining counties who do not have enough personnel to begin their own clinics. Patients are scheduled for these clinics on an appointment basis. A physical examination, including pelvic examination is completed on each patient. The patient is requested to make a yearly visit to the clinic for a physical check-up and counseling. Patients' return to the clinics depend on instruction by the

STATE HEALTH DEPARTMENT POLICIES ON FAMILY PLANNING

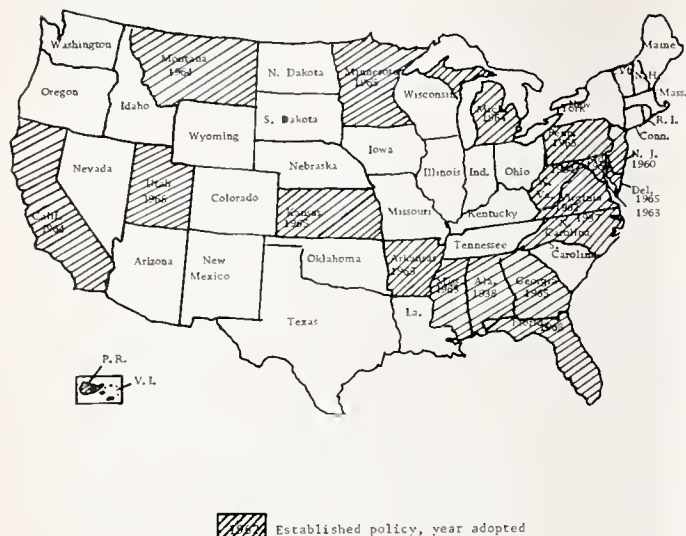


Figure 2

local physician conducting the clinic.

Strong support for family planning has come with the development of newer methods and techniques more acceptable to the patients. Prior to the oral medical contraceptive the patient had to have the highest degree of motivation to practice family planning. Studies show that the effort of one partner having to leave the bed to obtain one particular type of contraceptive device determined a certain percentage of failure for this particular device. The ability to take an oral medication was a great revolution in contraceptive history. In 1956 oral contraceptives were developed after animal experimentation. One tablet must be taken each day for a total of 20 days. If one or more pills are omitted, the possibility of increased fertility occurs. The side affects are discomforts resembling pregnancy. These include breast tenderness, abdominal cramps, nausea, headaches, depression, premenstrual edema, gain in weight, less energy, changes in sleep habits, nervousness as well as a mild cloasma. The majority of these complaints disappear after a few weeks or months following oral medication. Since some breast cancers are stimulated by estrogens it is very important to do a good physical examination including careful examination of the breast prior to prescribing oral contraceptives. Enlargement of uterine fibroid and cervical polyps may occur. The most serious complication attributed to the oral contraceptives is thrombosis and thrombo-embolism. Minor changes in the clotting mechanism resemble those of pregnancy. The evidence so far is that there is no increase among the users of oral contraceptives above the

rate expected among non-users of oral contraceptives; however, the suspicion lingers.

The great revolution in contraceptive history was the introduction of the intra-uterine device. A discussion of the intra-uterine device was published in the October 1964 issue of the Journal of the Arkansas Medical Society, by E. Stewart Allen, M.D. and Willis E. Brown, M.D. The chief advantages of the intra-uterine contraceptive device are:

1. Insertion of the device can be conducted without anesthesia during a pelvic examination.
2. The device is reversible. It can be removed by a simple office procedure, returning the patient immediately to the ability to become pregnant.
3. Once the device is in place it is effective until removed by the patient's physician, thus requiring the patient to present herself to the physician's office for counseling and other screening techniques.
4. The use of the intra-uterine device requires no effort on the patient's part and patients with very little motivation for contraception can plan their families effectively.

The concept of the intra-uterine foreign body preventing conception was first conceived by Graffenburg in 1929 who inserted rings of silver and gold as an intra-uterine foreign body. The medical profession condemned this method without properly controlled studies. The degeneration of these materials were followed by complications which provoked an outrage in the medical profession. With the developments of plastics utilized as intra-cardiac valve transplants and blood vessel transplants causing very little tissue reaction, the intra-uterine device again had a place in family planning. The research completed by Dr. Willis Brown and Dr. E. Stewart Allen initiated the way for the use of the intra-uterine device in our local public health clinics. The mode of action was described by Dr. L. Mastroianni, Jr., in 1964, experimenting on monkeys and theorizing that the increased rapidity of tubal transport of the ova prevented fertilization or if the ova was fertilized it did not have the ability to become implanted in the uterine wall. There are several shapes of intra-uterine devices such as a spiral, a bow, a loop and a ring. Dr. Jack Lippes developed the IUD shaped like a loop which has been utilized most effectively in our clinics. A poly-

ethylene suture attached to the lower tip of the Lippes Loop to facilitate easy withdrawal as well as to allow the physician to determine the presence or absence of the loop at later examinations. The loop is also blended with barium sulfate for x-ray visualization.

The effectiveness of the loop as compared with other types of contraception is reported in woman years of use. This is the unit of measurement for contraceptive effectiveness arrived at by the total number of months a single method has been used by the woman divided by 12. This gives you a figure of pregnancies per 100 woman years of use. In 1961 a sociological study reported that family planning method of 1,165 metropolitan couples in the United States. The results reported in pregnancies per 100 woman years of use: condoms, 13.8, diaphragm, 14.4, withdrawal 16.8, rhythm 38.5, douche 40.8. The oral contraceptive pills as reported by Satter, Waite and Gamble give a rate of 2.8 pregnancies per 100 woman years, the Lippes Loop as reported by Dr. Jack Lippes gives a rate of 2.2 pregnancies per 100 woman years.

Complications of the intra-uterine device consist primarily of expulsion and vaginal bleeding. Over 90 percent of the patients have some alteration of their menstrual periods from insertion of the IUD. The first menses following insertion is usually heavier than normal. Some patients continue to have pre-menstrual spotting and other patients have some spotting at mid-cycle. Six percent of the patients in Dr. Lippes group had removals of the IUD for bleeding. Three percent of the patients had removals for pain, and seven percent of the patients had expulsions of the loop. If an expulsion occurs, a patient may elect to have a second device reinserted. A larger device or a different shaped device may remain in place. If the expulsion is going to occur it usually will occur during the first or second menstrual period. Following the first 6 months of use very few expulsions develop.

Contraindications for intra-uterine contraceptive devices are: pregnancy, history of acute or chronic infection of the female organs, acute or

chronic infections of the cervix, malformations of the uterine cavity or uterine fibroids. In counseling the patients the intra-uterine device is not the device of choice in the nulliparas woman. This is not a problem in our Family Planning Clinics since 99 percent of the patients presenting themselves to our clinics have at least had one or two children.

The intra-uterine device adapts itself well to public health use. The motivation of the patients presents a problem with our family planning methods. Complications occurring in any of our patients are referred to the private physician or to the University of Arkansas Medical Center.

The Arkansas State Health Department would like to enable all parents to choose their family size. We know by experience that the mother forced by a lack of understanding becomes entangled in a world of complex problems. Even the process of obtaining clothing and food from day to day becomes an impossible task. Our mental hospitals are filled with mothers who because of large families and low incomes could not reach a happy equilibrium. While responsible parenthood is a moral obligation of a husband and wife the concept has implications for the society also, in assisting parents in the exercise of their duty. We are concerned with how many families have more children than they want or more children than they are willing to take care of. We find that the families are also concerned about these problems. Even the mother with the lowest income has aspirations. She is concerned about juvenile delinquency, the hunger of her children, the depressed attitude of her husband and the condition of her home. She realizes that family planning is to benefit her in helping her establish her home in the community. When we help the community we also help the state. As our Family Planning Clinics progress we would like to see more and more Arkansas physicians volunteering their services. We want to advance our Family Planning Programs until they are available in every county of our state.



EDITORIAL

ANNUAL SCIENTIFIC SESSIONS

Alfred Kahn, Jr., M.D.

It is definitely to the advantage of the Arkansas Medical Society to have its activities, services, and constitution criticized by its members. A medical society lacking in members who are willing to undertake the effort to try to improve a previous or current system is a dead society.

Recently, a letter has been written to the Journal of the Arkansas Medical Society proposing that the scientific sessions at the annual meeting of the Arkansas Medical Society be discontinued. Although there are merits to this suggestion, they are outweighed by the arguments in favor of maintaining the scientific sessions.

The principle arguments against the scientific sessions are the facts that (1) they cost money and (2) they do not disseminate information. It is this writer's opinion that both of these points are partially correct, and in addition there are very pressing arguments for the continuation of the scientific programs. In the first place, the Journal of the Arkansas Medical Society is very dependent upon the scientific papers presented at the annual session. For the most part, these papers are high grade and publishable; many of the papers are later published in other journals giving recognition to the prior printing by the Journal of the Arkansas Medical Society. Without good scientific articles a medical journal cannot exist either as a conveyance of scientific information nor in all probability can it satisfy the postal authorities as to its legitimacy—if advertisements occupy too great a proportion of the journal in relationship to bonafide scientific information and information pertaining to the Arkansas Medical Society.

This in turn leads to the question, what is the position of the Journal of the Arkansas Medical

Society and is it worth continuing? It is certainly worth continuing perhaps first and foremost because of its value in continuing post graduate medical education. Most scientific articles are of interest to some physicians in the state. It is not expected that every article will appeal to every physician. Many times the article is published to enable physicians to read information given at a meeting which they could not attend.

There seems little doubt that the fine series entitled "Teaching Seminars from the University of Arkansas School of Medicine" accomplishes a worthwhile teaching mission just as do papers presented at a scientific session. The Journal also carries a certain amount of medical news pertaining to physicians in the state. If it were not for this news, contact between many physicians would be lost. Also published is a certain amount of information pertaining to the national medical scene which is of value to Arkansas physicians. The advertisements in the Journal of the Arkansas Medical Society offset a great deal of the expense of publishing the Journal. Advertisers who use the Journal will not pay for advertising in an inferior journal. Basically the Journal is an instrument for teaching physicians and it needs good scientific articles to accomplish this. In fact, an out of state journal in a sister southern state arranges the annual scientific programs of the state medical society just to be sure there are adequate numbers of scientific articles.

The importance of having scientific programs here has been brought up. It is perfectly true it costs money. Even if it does every physician is bound to be stimulated. An internist may express many ideas stimulating to a surgeon or gynecologist and the reverse may be true. The universal

acceptance of scientific programs by medical societies the world over attests to the truth of the value of the programs. In fact, a medical society without a scientific program is virtually unknown to this writer.

One of the recognized costs of all medical societies has been the cost of having scientific speakers appear on programs; this is largely understood. Should having a first class speaker be classified an expense or a necessity? It would appear that the problem is to make sure that the scientific programs presented at the Arkansas Medical Society are of a type that is pleasing to the members. Many programs specifically aimed at one group or specialty have scientific information which is of great interest to another group.

All in all the proposal for abandonment of the scientific programs should be a valuable stimulus to reviewing the status of the scientific programs at the Annual Session of the Arkansas Medical Society with an eye toward improvement rather than abandonment.

It would be desirable to have more constructive criticism desired from among the rank of the society.

RESOLUTIONS



WHEREAS, in order to express themselves on the recent loss of Dr. Hershel F. Gray, the members of the Pulaski County Medical Society

do pause with respect and,

WHEREAS, Dr. Gray was a member of this Society for twenty years and his contribution to the health and well-being of persons in this community will long be remembered and appreciated, and

WHEREAS, the members of this Society extend to his family and friends their heartfelt sorrow and sympathy.

BE IT THEREFORE RESOLVED:

THAT a copy of this resolution be sent to his family,

THAT a copy of this resolution be published in the Journal of the Arkansas Medical Society, and

THAT a copy of this resolution be inserted into the permanent minutes of the Pulaski County Medical Society.

By Action of the Memorials Committee
John McCollough Smith, M.D.,
Chairman
William L. Fulton, M.D.
T. Duel Brown, M.D.

Read and approved by the
Executive Committee
August 17, 1966

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Congenital syphilis.

X-RAY FINDINGS: There is periosteal new bone formation involving the long bones. The symmetrical destructive lesions of the medial side of the tibial metaphysis are classical. There are also irregular destructive lesions of the metaphyses of the femora.

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: 175 RHYTHM: Sinus tachycardia

PR: .12 sec. QRS: .06 sec. QT: .25 sec.

ABNORMAL: Marked increase in R voltage in right precordial leads. Ischemic ST-T changes.

COMMENT: An example of tremendous voltage in right precordial leads.



THE MONTH IN WASHINGTON

Washington, D.C.—The Public Health Service Advisory Committee on Immunization has concluded that routine typhoid fever vaccination is not needed any longer in the United States.

Surgeon General William H. Stewart accepted the findings of the committee and stated as PHS policy that immunization against the disease is not recommended on a routine basis.

The committee reported that the incidence of typhoid in this country had declined steadily for many years and now is less than 500 cases a year. A continuance of the downward trend was predicted.

"Cases are sporadic and are primarily related to contact with carriers rather than to common source exposure," the committee said. Recognizing this epidemiologic pattern of typhoid fever, redefinition of the role and use of typhoid vaccine is indicated.

The committee further stated that, "although typhoid vaccine has been suggested for individuals attending summer camps and those in areas where flooding has occurred, there are no data to support the continuation of these practices."

However, select immunization was recommended in the following situations:

- Intimate exposure to a known typhoid carrier as would occur with continued household contact.
- Community or institutional outbreaks of typhoid fever.
- Foreign travel to areas where typhoid fever is endemic.

In a separate report, the advisory committee predicted relatively little influenza during the 1966-67 season, but recommended vaccination after Sept. 1 for certain high-risk groups—such as the chronically ill and older persons.

The committee pointed out, however, that it is reasonable to expect that limited outbreaks of Type A₂ influenza will occur in parts of the United States not experiencing Type A disease in 1964-65 or 1965-66. Similarly, the possibility

of some Type B influenza is recognized, particularly in the southwest.

"Vaccination when called for should begin as soon as practicable after September 1 and ideally should be completed by mid-December," the committee said. "It is important that immunization be carried out before influenza occurs in the immediate area since there is a two-week interval before the development of antibodies."

Because variations in influenza viruses during the 1965-66 season were not of major significance, the composition of the 1966-67 vaccine is unchanged from that prepared for 1965-66.

A Senate Government Operations Subcommittee said that more information is needed in the field but that scientific data now available does not indicate human health hazards of sufficient significance to warrant drastic curbs on the use of pesticides.

However, the subcommittee reported that "the magnitude of the future risk is uncertain in many important areas."

"Knowledge regarding the risk of chemical pesticides . . . will have to be broadened and refined considerably in order to provide clear-cut answers to questions that will be forced by the increasing need for pest control in the future," said a subcommittee report based on a two-year study.

"While some of the more gloomy prophecies that had been raised could not be supported by hard scientific fact, it is also true that science could not and still cannot prove that some of these prophecies are untenable."

To combat the human health dangers, the report recommended that the Department of Health, Education and Welfare, accelerate an environmental health program; increased research in human pharmacology; development of safer chemical pesticides which are safer for human beings; greater emphasis on development of non-chemical pest-control methods; training of agricultural workers in good hygiene practices in us-

ing pesticides; and general educational programs on health in the chemical age.

The Food and Nutrition Board of the National Academy of Sciences believes that it may be well for many Americans to moderately reduce the amount of fats they eat and substitute some polyunsaturated for saturated fats.

However, the board concluded in a lengthy report, "Dietary Fat and Human Health," that present evidence on the connection between dietary fat and cardiovascular diseases is insufficient to warrant recommendations for radical dietary changes.

The board's study was directed to the problem of how much and what kind of fat is compatible with human health. The report emphasized that any changes in consumption of fat should be made on an individual basis with consideration given the consequent changes in caloric and nutrient intake.

"Until we learn more about which fats are desirable nutritionally, the Board recommends that the American consumer should partake of the foods that make up a varied, adequate, and not overly rich diet and maintain a normal body weight by judicious control of caloric intake and by daily exercise," the report said.

"A large amount of information has accumulated relating dietary fats to the etiology of human atherosclerosis and its complications, particularly coronary artery disease. As yet, the causes and course of development of atheroma and its relation to coronary heart disease in man are imperfectly known. Disorders of fat transport or metabolism or both certainly participate, but are not the only factors. Heredity is involved in individual susceptibility. Disorders of blood flow and blood clotting are implicated in atheroma formation in addition to contributing to the fatal complications of the disease.

"Evidence to support the concept that increased plasma concentrations of cholesterol are atherogenic is considerable but not conclusive . . . Many, but not all, population studies indicate that diets high in fat, among other nutrients, are correlated with higher concentrations of plasma cholesterol and with increased prevalence of cardiovascular disease. However, proof of a causal relationship is lacking. In the majority of the adult population the concentration of plasma

cholesterol can usually be reduced by increase in the quantity of polyunsaturated fat in the diet at the expense of saturated fat. That this degree of reduction in plasma cholesterol is beneficial is still uncertain . . .

". . . in spite of the large amount of information accumulated in recent years about atherosclerosis and its pathogenesis, many gaps in knowledge remain. Results of recent studies, while valuable and thought provoking, do not provide sufficient data for firm recommendations for radical dietary changes."

The Social Security Administration said that the 460,000 medicare patients in hospitals during the first month of the program's operation did not result in any overcrowding.

There were a few isolated instances of overcrowding, mostly in rural areas, but they already existed before medicare started July 1, the SSA said.

The elderly patients occupied from 30 to 35 per cent of the beds in general hospitals, in comparison to about 25 per cent before medicare. Federal officials had estimated a 5 per cent increase.

Inquiries from intermediaries to SSA headquarters as to eligibility for Plan B medical benefits totalled 8700 through July 22. A few spot checks showed assignments leading over direct billings by a small margin. But assignments normally would be filed sooner than direct billings.

There still were about 200 hospitals in the south that had not been qualified as to civil rights requirements on racial integration. This situation left 132 counties that have hospitals with none qualified at the end of the month. By states, the counties were. Mississippi 31, Georgia, 23, Louisiana (parishes) 19, Texas 12, Virginia 11, South Carolina 9, Alabama 8, Arkansas 6, Kentucky 6, North Carolina 3, Tennessee 2, Florida 2, and West Virginia 1.

PHYSICIAN MANPOWER: DEMANDS

The adequacy of physician manpower can best be brought into perspective by an examination of patient care demands. An indicator of medical care demands may be obtained by examining the average number of annual physician visits and the average number of annual hospital admissions. While hospital inpatient care is an efficient means

of providing medical care that maximizes the physician's efforts, it accounts for an important share of the demands made upon physician manpower. Data for this comparison are of necessity based on two separate time periods to utilize data resulting from studies made by the Committee on the Costs of Medical Care (1928-31) and the National Health Survey made by the U. S. Public Health Service (1959). The data presented may not be precisely comparable over the years but nonetheless represents a valuable source of available information.

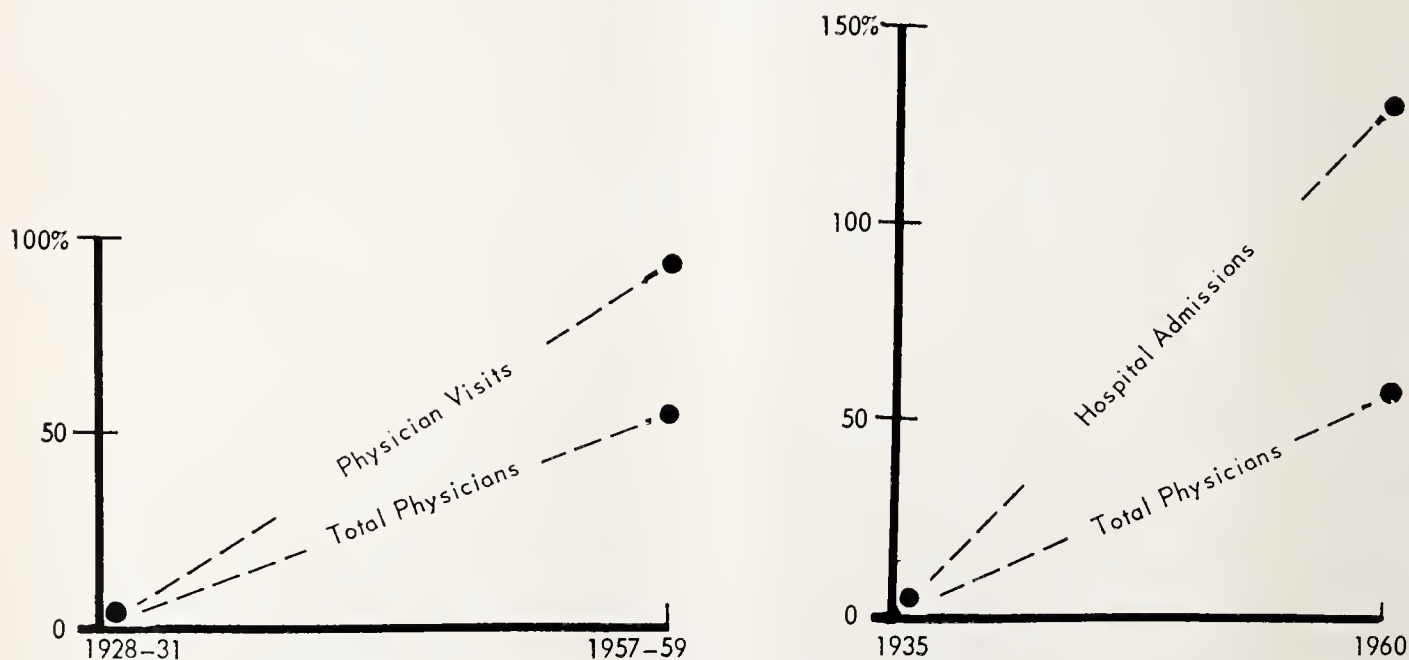
In the period 1928-31, the annual per person average of out-of-hospital physician visits was 2.6. This annual average reached 5.0 for the years 1957-1959. Admissions to long and short term general and special hospitals (other than mental and tubercular), which in 1935 averaged 59 per 1,000 population, had grown to 136 per 1,000 population by 1960. This twenty-five year period saw the rate of admissions to hospitals more than double while more effective treatment resulted in a decline in the average number of hospital days per admission from 15.0 to 9.3. Figure 1 compares increase in the annual per person average of out-of-hospital physician visits with increase in total physician population for the years 1928-31 and 1957-59. The increase in physician population is also compared with the increase in average hospital admissions per thousand for the years 1935 and 1960.

No direct supply and demand relationship can be inferred in this illustration since the total manpower pool does not reflect the actual number of physicians engaged in the practice of medicine. These figures do, however, appear to indicate that the demands being made of physicians as measured in numbers of hospital days and physician visits are increasing at a rate that far exceeds the increase in total number of physicians.

Studies of the medical demands of varying segments of the total population have isolated a number of factors contributing to increased health care demands. Persons over 65, who now make up some 10 per cent of the total population, require frequent and extensive medical attention accounting for considerably higher rates of physician visits, hospital admissions, and chronic and acute conditions. This group can be expected to grow even larger in the future with increases in longevity. The availability of Medicare benefits will no doubt promote additional demands for physician services by the elderly.

It has been established that level of income affects medical-care demands and that those in the population with relatively high income make correspondingly greater demands. The educational attainment of the family head also affects the utilization of medical care services. Greater demands are made by the more highly educated irrespective of their level of annual income. Table 1 presents the number of annual physician visits in re-

FIGURE 1



Comparison of percentage increase in the average number of annual hospital admissions, physician visits, and total number of physicians in two selected time periods.

lation to age and income level groupings.

TABLE 1

Number of Physician Visits per Person per Year, by Age and Family Income: United States, July 1957-June 1959					
Age	Family income				
	All incomes*	Under \$2,000	\$2,000-\$3,999	\$4,000-\$6,999	\$7,000+
All ages	5.0	4.6	4.6	5.1	5.7
Under 15 years	4.6	3.0	3.7	5.0	5.7
15-44 years	4.8	4.0	4.5	4.9	5.5
45-64 years	5.4	5.1	5.4	5.4	5.6
65+ years	6.8	6.5	6.6	6.9	8.7

*Includes persons with unknown incomes.

These greater demands are further compounded by the increased medical-care insurance coverage of a major portion (79 per cent in 1964) of the population so that a concern for the expense in seeking medical care has diminished. A study of hospital discharges from 1958 to 1960 indicated that 92 per cent of those with hospitalization insurance coverage had one-half or more of their bills paid by insurance.

As such factors contributing to increased patient care demands as expanding population, higher levels of income, education, and insurance coverage continue their rise, a concomitant rise in demands upon physician manpower can be expected in the future. The next issue of Datagrams will consider efforts being made to increase physician manpower for the future.

THINGS



TO
COME

VINCRIStINE SYMPOSIUM

Current concepts of biological, pharmacological and biochemical action, and comprehensive summaries of therapeutic results obtained in treating solid tumors and the leukemias, will be presented at a Vincristine Symposium, sponsored by the Pediatric Division of the Southwest Cancer Chemotherapy Study Group, January 27, 1967, St. Jude Children's Research Hospital, Memphis, Tennessee.

No registration fee. Further information is available through Headquarters, Southwest Cancer Chemotherapy Study Group, 6723 Bertner Drive, Houston, Texas 77025.

HEADQUARTERS FOURTH AIR FORCE RESERVE REGION, RANDOLPH AIR FORCE BASE, TEXAS

25 JULY 1966

Doctors needed! Requirements: good health, vigor and patriotism. The Air Force Medical Reserve has many interesting assignments at Air Force Bases throughout Arkansas for eligible physicians, with or without prior military service. All require 1 weekend per month and a 2-week summer tour, all provide liberal pay and allowances. For the most interesting and worthwhile avocation extant, write or call

Surgeon's Office, 4AFRR
Randolph AFB, Texas 78148
Base No. OL 8-5311, exts 5271, 2019,
2772

Or contact the hospital executive officer at:

Blytheville AFB
Blytheville, Arkansas

Little Rock AFB
Little Rock, Arkansas



OBITUARY

Dr. D. Harvey Shipp

Dr. Harvey Shipp, aged 57, of Little Rock died July 17, 1966. He was born in Bloomington, Indiana, the son of the late Dr. A. C. and Elsie Freeman Shipp and had lived in Little Rock since early childhood. He attended Little Rock public schools and was a graduate of Little Rock High School, Hendrix College and the Indiana University Medical School. He interned and did his residency at Charity Hospital in New Orleans and did graduate work in thoracic surgery at Leahy Clinic in Boston. He had practiced in Little Rock since 1934. At the time of his death he was serving on the medical staffs of Arkansas Baptist Medical Center, St. Vincent Infirmary, Arkansas Children's Hospital, and the Memorial Hospital in North Little Rock. He had served as chief of surgical staff at the Baptist Medical Center and the Arkansas Tuberculosis Sanatorium at Booneville. Dr. Shipp was a past president of the Pulaski County Medical Society. He was a fellow of

the American College of Surgeons and the International College of Surgeons. He was a veteran of World War II, a member of the Pulaski Heights Methodist Church, the Pulaski Heights Lions Club, Western Star Lodge 2, F and AM, the Arkansas Consistory, the Scimitar Shrine Temple and the Riverdale Country Club. Survivors include his widow and three daughters.

Dr. Herschel Frederick Gray

Dr. Herschel F. Gray, 52, of Little Rock died July 31, 1966 at his home. He was born at Little Rock, the son of the late Alfred Frederick Gray and Mrs. Agnes Ball Gray. He was educated at Little Rock public schools and was a graduate of Little Rock High School and Little Rock Junior College. He was graduated from the University of Arkansas Medical School and interned at the Wichita, Kansas Methodist Hospital before serving as medical officer for the Civil Aeronautics Authority. During World War II, he was a flight surgeon in the Army Air Corps. He had been in

practice in Little Rock since 1946 and founded Gray Clinic, now Gray Memorial Hospital, in 1948. He was a member of Hunter Methodist Church, the Pulaski County Medical Society, the Arkansas Medical Society, the American Medical Association and the Arkansas and American Academy of General Practice. He was a member of the medical staff at Arkansas Baptist Medical Center. Survivors include his widow, two sons, a daughter, and his mother.

Dr. Ronald Cole

Dr. Ronald William Cole, a 1964 graduate of the University of Arkansas School of Medicine, was killed in an automobile accident near Grand Canyon, Arizona on August 6, 1966. Dr. Cole attended high school in Pine Bluff and was graduated from Hendrix College in 1954. He then served a tour of duty with the United States Army before entering medical school. Dr. Cole interned in Arizona and entered practice there.



P E R S O N A L A N D N E W S I T E M S

Dr. Houston Has Associate

Dr. John M. Farmer, until recently a physician with the U. S. Air Force, is now practicing in Magnolia in association with Dr. Evan Houston. Dr. Farmer graduated from the University of Missouri Medical School in 1963.

Dr. Stalker to Batesville

Dr. James M. Stalker has entered the practice of general surgery in Batesville. His office is temporarily located in Gray's Hospital. Dr. Stalker is a 1962 graduate of the University of Arkansas School of Medicine.

Dr. Owens Honored on Retirement

Dr. D. L. Owens of Harrison retired July 1, 1966, after 45 years of medical practice. He was honored with a surprise dinner party by the Boone County Medical Society and the board of governors of the Boone County Hospital. Dr. Owens

was presented a fishing rod and reel by Dr. Joe Bennett, President of Boone County Medical Society. Dr. Ross Fowler gave a brief history of Dr. Owens' medical career and the doctor responded, expressing his appreciation and reciting some experiences during his long tenure of practice.

Dr. Brown Returns to Searcy

Dr. A. R. Brown, who practiced medicine in Searcy for 16 years, has returned to Searcy following a two-year absence in which he has taught on the college level and has done residency work in internal medicine. Dr. Brown will share offices at Hawkins Clinic until the completion of his new facilities in a few months.

Dr. Wilson Joins Clinic

Dr. Jack C. Wilson has joined the staff of the Cheney-Snow Clinic in Mountain Home. He is a 1963 graduate of the University of Arkansas School of Medicine. Other physicians in the clinic

are Dr. Maxwell G. Cheney and Dr. William R. Snow.

Harrison Has New Doctor

Dr. Thomas E. Bell announces the opening of his office at 604 North Spring in Harrison for the practice of surgery. He graduated from the University of Arkansas School of Medicine in 1960.

Dr. Shedd to Paragould

Dr. Lee Shedd is now affiliated with Drs. Omer Bradsher and Solon McGaughey in the practice of general medicine at 925 West Kingshighway in Paragould. Dr. Shedd is a graduate of the University of Arkansas School of Medicine.

Dr. Lyford Practices in Conway

Dr. Hornor Lyford, formerly of Buena Vista, Colorado, has entered into the practice of general medicine in Conway at the Conway Clinic. He graduated in 1961 from the University of Arkansas School of Medicine.

Dr. Clark Has Associate

Dr. Curtis B. Clark of Sheridan announces the association of Dr. Clyde D. Paulk in the practice of general medicine at the Grant County Clinic.

Doctors' Offices Robbed

The Doctor's Building in Fayetteville and the offices of Dr. John Vinzant and Dr. C. Rodney Baker, also in Fayetteville, were broken into in August. Some cash was reported as stolen.

Fayetteville Has New Psychiatrist

Dr. Jack Edmisten has opened his office for the practice of psychiatry at 102 West Dickson in Fayetteville. He is a graduate of the University of Arkansas School of Medicine.

Dr. Paul Opens New Clinic

Dr. Robert K. Paul announces the opening of his new clinic at 1524 Potts Street in Malvern for the practice of radiology.

Resuscitation Course Held

A course in instruction and direct practical application in the technique of cardio-pulmonary resuscitation, a combination of mouth-to-mouth resuscitation and external cardiac massage, was held in July at the Arkansas Baptist Medical Center in Little Rock. Two faculty members of the University of Pittsburgh School of Medicine demonstrated the technique to approximately twenty doctors from around the state. Among those in attendance were Dr. John D. Ashley of

Newport; Dr. Ted Ashcraft, Dr. David Bachman and Dr. Charles F. Wilkins of Russellville. The Arkansas Heart Association sponsored the demonstration.

Dr. Fowler Retires

Dr. W. A. Fowler of Fayetteville retired on July 29, 1966 from the active practice of medicine. He has been in practice for 58 years and is 82 years old. He has been in Fayetteville since 1930.

Dr. Henry Wins Nomination

Morris M. Henry, M.D., of Fayetteville, Arkansas, won the Democratic nomination in one of his county's three seats in the Arkansas House of Representatives by wide margins in runoff balloting in August. He is unopposed in the November general election. Dr. Henry is a graduate of the University of Tennessee School of Medicine and has been in the private practice of Ophthalmology in Fayetteville since 1962.



PROCEEDINGS OF SOCIETIES

Faulkner County

The Arkansas Chapter of the Arthritis Foundation introduced a new program for arthritis victims to the Faulkner County Medical Society in July. The program is a unique project aimed at extending out-of-hospital care to arthritis victims in the home.

Phillips County

Physicians of the Phillips County Medical Society have planned a series of lectures on problems of medical practice under a "Breakfast With Medicine" program in cooperation with the post graduate division of the University of Tennessee College of Medicine. Dr. Ruben L. Chrestman, Jr., president of the Society, announced that the first series of teaching sessions began September 13th and consisted of six lectures on the subject of orthopedics.



NEW MEMBERS

DR. HERMIE GAYE PLUNK is a new member of Craighead-Poinsett County Medical Society. A native of McNairy County, Tennessee, she received her preliminary education from Memphis State University. In 1965 she was graduated from the University of Tennessee School of Medicine and she interned at St. Joseph Hospital in Memphis, Tennessee. Dr. Plunk is a general practitioner and her office address is 135 East Main in Jonesboro, Arkansas.

A new member of Dallas County Medical Society is DR. JACK T. DOBSON, a native of Goose Creek, Texas. He obtained his pre-med from Henderson State Teachers College. He received his M.D. degree from the University of Arkansas School of Medicine in 1964. Dr. Dobson's office address is Second and Clifton Streets in Fordyce, Arkansas. He is a general practitioner.

Jefferson County Medical Society announces that DR. MARY ELLEN CLICK JENKINS is a new member. Born at Winthrop, Arkansas, she received her pre-medical education from the University of Arkansas. She was graduated from the University of Arkansas Medical School in 1959 and she interned at the University of Arkansas Medical Center. She also completed a residency at the University of Arkansas Medical Center. She has practiced at the Fort Roots Veterans Administration Hospital in North Little Rock, and at the Arkansas Children's Hospital in Little Rock. Dr. Jenkins is an anesthesiologist at Pine Bluff, Arkansas.

DR. BOBBY JOHN JENKINS is a new member of the Jefferson County Medical Society. He is a native of Mountain View, Arkansas, and he received his preliminary education from the University of Arkansas. He received his M.D. degree in

1959 from the University of Arkansas Medical School, and he interned at the University of Arkansas Medical Center. He completed an internal medicine residency at the Veterans Administration Hospital and at the University of Arkansas Medical Center. He practiced at the Veterans Administration Hospital in North Little Rock from 1960-1961; in the U. S. Army from 1961-1962; and at the Veterans Administration Hospital in Little Rock from 1965-1966. Dr. Jenkins' specialty is internal medicine and his office address is 1710 West 42nd Street in Pine Bluff, Arkansas.

DR. ROBERT J. SMITH is a new member of Jefferson County Medical Society. He is a native of Hayti, Missouri, and he received his preliminary education from Southern Illinois University in Carbondale, Illinois. He was graduated from Meharry Medical School in 1955 and he interned at Minneapolis General Hospital in Minneapolis, Minnesota. He served a general surgery residency at Meharry Medical College. He was in the U. S. Army from 1956-1958; the U. S. Public Health Service from 1962-1963. He practiced for two years at Akron, Ohio, and one year at Nashville, Tennessee. Dr. Smith's specialty is general surgery and his office address is 1111 Cherry Street in Pine Bluff, Arkansas.

A new member of Pulaski County Medical Society is DR. OTIS EDWARD CUTLER, a native of Dallas, Texas. He received his pre-med from St. Edwards University in Austin, Texas. He received his M.D. degree from the University of Arkansas School of Medicine in 1965 and he interned at the Arkansas Baptist Medical Center in Little Rock. Dr. Cutler is a general practitioner and his office address is 1624 Maryland in Little Rock, Arkansas.

Pulaski County Medical Society announces that DR. MICHAEL NICHOLAS HARRIS is a new member. He was born at Helena, Arkansas, and he received his preliminary education from Arkansas State Teachers College at Conway and from the University of Arkansas. He received his M.D. degree from the University of Arkansas School of Medicine in 1960 and he interned at the Arkansas Baptist Memorial Hospital in Memphis, Tennessee. He completed a residency in internal medicine at Baptist Memorial Hospital in Memphis, and a residency in internal medicine and rheumatology at the University of Tennessee in Mem-

phis. He was clinical instructor at the University of Tennessee from 1961-1966. Dr. Harris' office address is 400 Pershing Boulevard, North Little Rock, Arkansas. His specialty is internal medicine and rheumatology.

DR. JAMES ROBERT RASCH is a new member of Pulaski County Medical Society. He was born at Glendale, California, and he received his preliminary education from the University of Arkansas. In 1956 he received his M.D. degree from the University of Arkansas School of Medicine and he interned at the University of Arkansas Medical Center. He served in the U.S. Air Force from 1956-1966. He completed a residency in internal medicine at Willford Hall U.S. Air Force Base Hospital in San Antonio, Texas. He was instructor in the department of medicine at Tulane University School of Medicine from 1965-1966. Dr. Rasch's specialty is internal medicine and his office address is 900 North University in Little Rock, Arkansas.

Saline County Medical Society announces that DR. DONALD L. VINER is a new member. He is a native of Hardy, Arkansas, and he received his preliminary education from Arkansas Tech. He received his M.D. degree from the University of Arkansas Medical School in 1961 and he interned at Arkansas Baptist Hospital. He completed a general surgery residency at the Veterans Administration Hospital in Little Rock. He served in the U. S. Air Force from 1948-1950. Dr. Viner's office address is 212 West Sevier in Benton, Arkansas.

DR. ALLEN RICHARD ROZZELL is a new member of Pulaski County Medical Society. A native of Little Rock, he received his pre-med from Little Rock Junior College, Arkansas State Teachers College and Hendrix College. He enrolled at the University of Arkansas School of Medicine and received his M.D. degree in 1960. He interned at the University of Arkansas Medical Center. He served in the U. S. Air Force from 1962-1963. He completed pathology residencies at the University of Missouri Medical Center in Columbia, Missouri. Dr. Rozzell was an instructor in the Department of Pathology at the University of Missouri from 1965-1966. His office address is now 500 South University in Little Rock, Arkansas.

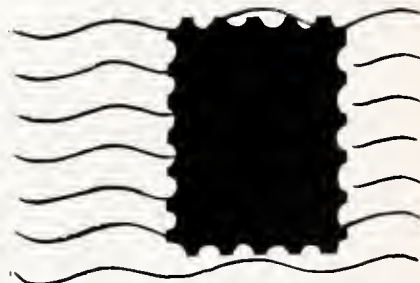


BOOK REVIEWS

ARTERIOGRAPHY PRINCIPLES AND TECHNIQUES EMPHASIZING ITS APPLICATION IN COMMUNITY HOSPITAL PRACTICE, by Joseph L. Curry, M.D. and Willard J. Howland, M.D., published by the W. B. Saunders Company, Philadelphia and London.

This text is really an excellent primer of a very complex subject. A full discussion of arteriography would fill an encyclopedia. In 328 Pages this book hits the highlights. The principle chapters are Aortography, Extremity Arteriography, Cerebral Arteriography, Renal Arteriography and Surgical and Postmortem Arteriography. This book is well illustrated and is a helpful book to any physician using this technique in a community hospital.

LETTERS



TO THE EDITOR

Akaihaba Abiriba Joint Hospital
Abiriba via Uzuakoli
Eastern Nigeria
12 August, 1966

Dear Friends,

Since I am engaged in a different program from most men in mission medicine I thought that I should give you a description of the work. First it complements the hospital program in many ways. Secondly, it has a strong emphasis on preventive medicine which seems to be an important cornerstone in the health programs of Europe and North America.

I drive a white International Scout loaned by UNICEF (United Nations Children's Fund). I also have a mobile clerk. My main contact is through the Health Centre which consists of a dispensary run by a dispenser attendant and a dresser; a 4 bed maternity staffed by a midwife and a wardmaid; and there is a health overseer trained by a UNICEF program in village health and sanitation. There are 8 maternities and 13 dispensaries I supervise. They are built and

staffed by the local county government. So I am not concerned with salaries, holidays, maternity leaves and other such complexities. Other Centres are sponsored by farm settlements (Ministry of Agriculture) and rubber and palm oil plantations (private corporations).

Each unit is visited weekly, fortnightly or monthly or less often depending on the accessibility of the centre especially during rains and also depending on the population served. To each centre we bring 50-100 pounds of non-fat powdered milk and a 100 pound sack of rolled wheat, resembling oatmeal, or bulgur wheat which we call "hospital rice". These are surplus foods from the USA and they are for malnourished children and pregnant mothers. Kwashiorkor is now rampant among the weaned children since food staples have recently doubled in price. In some areas half of the children I see have clinical signs of malnutrition. On my visit I run a diagnostic clinic and see problem cases and those seriously ill referred by the dispenser attendant. The midwife refers problem maternity cases and children from the Infant and Maternal Welfare Clinic. While I am running the diagnostic clinic, the Rural Health Sister (a nurse) and a Community Nurse (a midwife who has received an 18 month course organized by UNICEF) are running the Infant and Maternal Welfare Clinic. A mother may demonstrate to the others the preparation of such protein rich foods as roasted, pounded crayfish with corn starch paste or peanut butter with pap, etc.; then each mother receives a portion and feeds her child.

Preventative medicine is stressed: malarial suppressive drugs are given to each child since *plasmodium falciparum* is the type prevalent here and cerebral malaria is a common cause of death in children. Triple vaccine and polio are given; pertussis and tetanus take a constant toll. BCG Vaccine is given routinely since tuberculosis is prevalent in this densely populated area. By one year of age the infant mortality is 30% and by 5 years it has reached 50%. In a simple system as de-

scribed above the 5 year mortality is reduced to 12%. This is still high but a goodly reduction. When measles vaccine is made available in our program I believe this figure will be halved. Measles carries a mortality of 10%; then too Kwashiorkor develops most frequently following measles. Clinical Kwashiorkor under treatment carries a 30% mortality and untreated an 80% mortality by 8 months.

By now the afternoon is well upon us; the heat is making us sluggish and the dust is flying. So we load up those few critical patients who have agreed to hospitalization and head back over the hills to Abiriba.

Another part of our program consists of tuberculin testing in elementary and high schools and in compounds with tbc contacts; then giving BCG to those that are negative. It is also fairly well established that BCG produces a goodly degree of immunity against leprosy which affects about 4% of our population in this area.

I also am relief physician at the hospital. When on call I see 2-3 cases of obstructive labor weekly and many of them in multiparas. The exact reason for this frequent complication is not known, but on x-ray we frequently find the male type pelvis with the narrow pubic angle. The symphysiotomy which our texts label obsolete proves an excellent procedure for the poor operative risk. I also teach anatomy and physiology in the midwifery school and supervise the x-ray department.

So if you have been practicing 10-20 years and the daily routine has worn a deep rut, consider a tour of duty in the tropics in a hospital or in a medical school. There are numerous positions available. Tropical medicine is rapidly comprehended. The responsibility is less than in North American medicine and the telephone never rings. As the Swiss psychiatrist, Tournier says, at a certain stage all of us need a new "Adventure in Living."

Sincerely,
Meryl Grasse, M.D.





Sponsored by Arkansas Tuberculosis Association

PRIMARY TUBERCULOSIS IN CHILDREN

In a Brooklyn, N.Y., study, the incidence of infection with drug-resistant tubercle bacilli was found to be higher in children than in adults. One factor may be that children in depressed areas were infected by adults whose organisms had become resistant during treatment.

The significance of the emergence of resistant strains of *Mycobacterium tuberculosis* to the three major drugs used in treating tuberculosis has been the subject of several studies in recent years.

Initial infection with drug-resistant strains is known as primary drug-resistant infection. Studies of the incidence of such infection have been made by the U.S. Public Health Service, the Veterans Administration, and the New York City Department of Health. Data from these studies, made on adults, show that the present level of tuberculous disease due to resistant strains is low, about 5 per cent or less for the three major drugs—streptomycin, isoniazid, and para-aminosalicylic acid (PAS).

However, unless the tuberculin test has recently converted to positive, it cannot be said with certainty whether the tuberculous disease in adults is the result of recently acquired infection or is due to an endogenous exacerbation of infection acquired during childhood.

Since primary tuberculosis in children represents recently acquired infection, isolation of resistant organisms from such patients prior to drug therapy affords a more nearly accurate assessment of the incidence in a community of primary drug-resistant infection than does the isolation of resistant organisms from untreated adults.

Such a survey was undertaken at the Children's Chest Service of the Kings County Medical Center to which 332 children were referred from January 1, 1961, through December 31, 1966, for evaluation either because of a recent contact with

a patient with infectious tuberculosis or for treatment because of disease. The majority were from a district of low socioeconomic status where the risk of tuberculosis was high. None was more than 13 years of age.

Cultures positive for *M. tuberculosis* were obtained from gastric washings in 120. When growth of the cultures was adequate, the organisms were planted separately on medium containing each of the three drugs. A control culture contained no drug.

TWO CRITERIA

Strains from 101 of the 120 patients were considered suitable for study. Of these, 80 patients had received isoniazid for five days or less, a time considered insufficient for the emergence of resistant strains.

The data on isoniazid were analyzed according to two criteria, that of the Public Health Service and that of the Veterans Administration. In the former, + growth in the 0.2-microgm. concentration of isoniazid is considered the lower boundary of significant resistance. By this standard, 13 of 80 strains (16.3 per cent) were resistant to isoniazid. According to the VA criteria (any growth in 5-microgm. concentration or growth in the 1-microgm. concentration of isoniazid equal to that in the control), only 5 of the 80 strains (6.3 per cent) were resistant to isoniazid.

None of the patients had received streptomycin prior to the isolation of the organisms. With the criteria of either the PHS (+++ growth in 10-microgm. concentration), or the VA (++++ growth in 10-microgm. concentration), only three of 101 strains tested were significantly resistant.

As for PAS, three of 101 strains (3.0 per cent) were resistant by the PHS criterion (+ growth in 10-microgm. concentration); and only one strain by the VA criterion (++++ growth in 10-microgm. concentration).

Only two cases of multiple-drug resistance were

MORRIS STEINER, M.D., and AMOR COSIO, M.D. *The New England Journal of Medicine*, April 7, 1966.

found, one to isoniazid and PAS and one to all three drugs.

STUDIES COMPARED

While the findings of this study cannot be compared with those of the PHS and VA studies because of the vastly different population groups, there is basis for comparison with a study conducted among adults in New York City in which an incidence of primary isoniazid resistance of 2.6 per cent was reported, as compared with 6.3 per cent in this study.

The lower incidence in the adult group may be accounted for in part by the "dilution" of recently acquired primary resistance with endogenous reinfection. Since none of the patients in the present study was more than 12 years of age and 75 per cent were four years of age or younger, this factor was eliminated.

Furthermore, patients in the present study were drawn mainly from a local area of depressed socioeconomic status and of high risk for tuberculosis. It is likely that the greater incidence of primary isoniazid-resistant infection in these patients as contrasted with the adult group represents contact infection with individuals in the community whose organisms had become resistant during treatment.

Since the adult population in a community is a source of infection for children, it is perhaps surprising that the incidence of primary drug resistant infection was not greater in the present study. This may be because the children were infected with drug-sensitive organisms before the organisms of the source case had become resistant as the result of incomplete therapy. Another explanation may be that a large proportion of the adults in the earlier study were of a less socially responsible group (skid-row alcoholics) who had little close contact with children.

Clinical studies to denote the level of *in vivo* resistance of infecting organisms are difficult to assess. In the present study, the clinical course of the patients in whom isoniazid-resistant strains were obtained was no different from those in whom sensitive strains were found. Both groups were treated with isoniazid and PAS and there were no deaths in either group. Although success in treatment is not a sufficient criterion of the significance of resistance tests, it should be remembered that the mortality rate in children with active primary disease before chemotherapy was high.

From a theoretical point of view, there are two major differences between acquired and primary resistant infections.

In acquired resistance the process of selection and multiplication of the resistant mutant occurs in the patient himself, the interpretation being that sufficient concentration of the drug is not present to prevent multiplication of the organisms. In primary resistant infection the process of selection and multiplication of the resistant mutant has occurred elsewhere than in the patient. It therefore does not necessarily mean that the patient cannot cope with such a strain if sufficient concentration of the drug can be achieved in the blood.



Chromatography

C. H. Powell (1014 Broadway, Cincinnati), R. Tye, and E. Bingham *Arch Environ Health* 13:199-201 (Aug) 1966

A chromatographic appraisal of an euglobulin was developed, utilizing a column of finely divided amberlite IRC-50. A concentrate of the human euglobulin was chromatographed at $-1\text{ C} \pm 2\text{ C}$, pH 5.38 with a flow rate of 8 ml/hr. The eluted fractions were subjected to a bioassay for the euglobulin, and absorbance was measured at 278 m μ . A peak of concentration of protein corresponded closely with the peak of biological activity. Sera from experimental animals were tested by both techniques, and a linear relationship was found between the level, by bioassay, and the quantity of protein as indicated by the absorbances of a chromatographic peak.

Angiography in Kidney Contusions

L. Weneau, G. Lemaitre, and E. Mageman *J Urol Nephrol* 72:341-358 (June) 1966.

Total aortic angiography was used in cases of intermediate kidney contusions of moderate gravite wherein the therapeutic decision was guided by both clinical and radiological criteria. When intravenous urography findings were normal, angiography was not employed. If an urographic anomaly existed, angiography was performed in the course of the first week after trauma. Urography plus angiography lead to the diagnosis of contusion in the lower pole of the kidney ruling out a rupture or other serious injury.

November, 1966

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Vol. 63 No. 6

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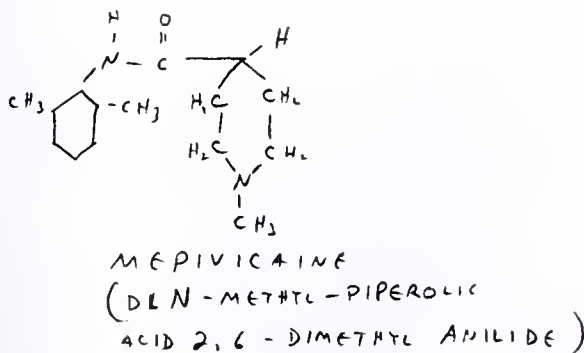
because of possible additive effect. Diphenhydramine has an atropine-like action which should be considered when prescribing BENADRYL. **SIDE EFFECTS:** Side reactions, commonly associated with antihistaminic therapy and generally mild, may affect the nervous, gastrointestinal, and cardiovascular systems. Most frequent reactions are drowsiness, dizziness, dryness of the mouth, nausea, and nervousness. BENADRYL is available in Kapseals[®] of 50 mg. and Capsules of 25 mg. 00666

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Richard B. Clark, M.D.*



Once administered, they are changed by the tissue buffers to the free base, the active form.

Pharmacology

Local anesthetics have the ability to interfere with nerve transmission by an action on the nerve membrane. They stabilize the nerve membrane, preventing ionic flow. The rapidity with which a nerve fiber is affected is dependent on its size. The smaller the fiber, the more quickly it is blocked and the longer the duration of the block. This is due to the greater relative surface area of the smaller fibers, compared to the larger fibers, and because of a myelin sheath on the more resistant nerves. Autonomic nerves are blocked most readily, followed by temperature, touch and pain sensation, then motor nerves, and finally tactile and pressure sensations and vibratory sense. Recovery occurs in a reverse order.

These drugs also have systemic effects. They can cause CNS stimulation, reduction in the irritability and contractability of the heart and vasodilation. These actions cause the most serious side effects. Locally, tetracaine, procaine and lidocaine are vasodilators. Cocaine is an active vasoconstrictor (useful in shrinking mucous membranes) and mepivacaine a mild vasoconstrictor.¹ Mepivacaine and lidocaine may both cause drowsiness when used in clinical amounts.

The toxicity of local anesthetics is measured mainly by their systemic effects. The commonly used ones have little, if any, local toxicity. Procaine is used as the standard for toxicity, given the designation "1" and other anesthetics compared with it on a weight basis. The newer drugs are more toxic (lidocaine 1-1.5:1, tetracaine 10:1) but

more potent (1.5-2:1 and 10:1). Perhaps the day will come when a drug will be found that is ten times as potent as procaine, but one-tenth as toxic.

Clinical Use

Local anesthetics may be used, of course, locally, topically and regionally. Before they are used, it is mandatory to take a history to ascertain whether the patient has had difficulty with these before. When these drugs are used, every effort must be made to prevent high blood levels from occurring, as reactions are usually caused by excessive levels. Aspiration must be performed before every injection. The soluble anesthetics must not be applied to abraded skin. The total dose must be known and anesthetics must be applied very cautiously to mucous membranes. It is seldom appreciated that topical use results in blood levels almost as high as intravenous administration.

The aqueous solutions of salts of local anesthetics do not penetrate the intact epidermis. Preparation of the anesthetic bases in ointments, however, accomplish this to a limited extent. For application to wounds and ulcers for the relief of pain, the insoluble compounds are the preparation of choice.³ These drugs (ethyl amino benzoate, "Benzocaine"; butyl amino benzoate, "Butesin"), benzoic acid esters, are only slightly water soluble and do not produce high blood levels.

The total dose of a local anesthetic that has been given and the maximal safe dose must be known. The latter varies from drug to drug and may be found in Table 2. These are guides, and while many persons can tolerate larger doses, some may develop reactions to smaller doses. Cocaine

TABLE 2

DRUG	COCAINE	PRO-CAINE	TETRA-CAINE	LIDO-CAINE	MEPIVI-CAINE
Type of compound	Ester of Benzoic acid and nitrogen containing base	Amino ethyl ester of Benzoic acid	Dimethyl amino ethyl ester of Benzoic acid	Diethyl amine derivative of acetanilide	Amide of N-methyl pipercolic acid
Potency Procaine=1	4:1	1:1	10:1	1.5-2:1	2.4:1
Toxicity Procaine=1	4:1	1:1	10:1	1-1.5:1	1.5:1
Usual concentration	4-10% Used only for topical administration	.5-2% Does not produce topical anesthesia	.1-2%	.5-2%	.5-2% Does not produce topical anesthesia
Maximal dose MG (excluding spinal anes.)	100-200	1,000	infiltration 200 MG topically 35-100 MG	infiltration 500 with epinephrine, 300 without 200 MG topically	infiltration 400

is used only topically and the maximal dose is 100-200 mg.^{4,5} The maximal topical dose of lidocaine is 200 mg.⁵ and tetracaine, 35-100 mg.^{6,5,4} For infiltration and nerve block the maximal doses are: Procaine, 1 Gm., lidocaine, 500 mg. (with epinephrine),⁷ mepivacaine, 400 mg.⁸ and tetracaine, 200 mg.⁵

The amount in a given solution of local anesthetic is expressed in percent. A 1% solution contains 10 mg. per cc., a 2%, 20. If 20 cc. of a solution were necessary to suture a wound, a .5% solution would contribute 5 mg. per cc., or 100 mg., while 2% would give a total dose of 400 mg. As high a concentration as 2% is seldom necessary except for blocking large nerves. *The smallest volume of solution in the lowest concentration necessary is used.* Thus, when the nurse in the emergency room asks if you want 1% or 2% lidocaine to suture a laceration, the choice would be 1% or even .5% if the laceration is extensive. Occasionally, if the wounds are extensive and the maximal dose of anesthetic would be exceeded, general anesthesia instead of local is indicated. The maximal dose for children can be calculated on a weight basis—say 3 mg. per pound for lidocaine (without epinephrine) and 5 mg. per pound with epinephrine.

Local anesthetics should not be injected into infected areas as the local hyperemia may result in increased absorption. Also, the anesthetics are less effective in these areas of decreased pH.

The use of epinephrine in an anesthetic solution decreases the absorption of the drug and prolongs its action. The former lessens the chance of a reaction. The latter is sometimes significant in local infiltration and very often in nerve block (such as caudal, brachial, intercostal, sciatic) where operative time is of significance. Very little epinephrine is needed to produce adequate vasoconstriction—for example 1:200,000 concentration⁹ (5 micrograms per cc.). The lower the concentration, the less likely the systemic manifestations of epinephrine (palpitation, tachycardia, nervousness) will occur. These are bothersome in their own right, may be dangerous to the cardiac patient and may be confused with an anesthetic reaction. Epinephrine frequently comes in a 1:1000 concentration (1 Gm. per liter or 1 mg. per cc.) and dilution of 1 cc. by 199 cc. would give a 1:200,000 solution. Dilution of 20 cc. of 2% Xylocaine with 1:100,000 epinephrine with 10 cc. of saline would, of course, give 30 cc. of 1.3% Xylocaine

(400/30=13 mg. per cc.) with epinephrine 1:166,000. The total dose of epinephrine should not exceed 300 micrograms. The vasoconstriction of cocaine and mepivacaine, alluded to in an earlier section, does not slow absorption.¹ Other examples of drugs commonly used as a percentage would be "Pentothal" (2% and 2.5%) and dextrose (5%-50 Gm. per liter).

Untoward Reactions

Reactions to local anesthetics include: 1) apprehension, 2) CNS stimulation (excitability, tremors, convulsions), 3) CNS depression (coma), 4) cardiovascular depression (shock), 5) allergy and 6) anaphylaxis. Patients may become quite excited during, before or after a local anesthetic injection—as in the dentist's office. CNS stimulation, CNS depression and cardiovascular depression are manifestations of local anesthetic intoxication, either from overdose or from hypersensitivity—perhaps due to a deficiency of serum enzymes.⁶

Very few patients are truly allergic to one or more local anesthetics. If they have a history of wheals, bronchospasm, serum sickness, anaphylaxis, etc., after the use of a local anesthetic this may be true; but the majority of "allergic" patients are actually hypersensitive.

It was formerly thought that only foreign proteins were able to elicit allergic reactions. These proteins were thought to cause antibodies to be formed, so that if the same protein was subsequently encountered, a reaction would occur. It has been found that non-protein substances such as local anesthetics and other drugs can cause antibody reactions by combining with the amino groups of protein in vivo to excite antibody formation. These substances are called haptens. It is believed that in anaphylaxis, massive amounts of histamine are released suddenly from the cells in which histamine is stored in bound form.¹⁰

A typical history of a local anesthetic reaction might be this: 10 cc. of 2% Pontocaine is administered to the tracheobronchial tree. The patient becomes talkative, apprehensive, restless, develops twitching movements, tremors, a grand mal convulsion, coma, apnea and cardiovascular collapse. Any or all of these catastrophes may develop.

Prevention

Local anesthetic reactions may be usually prevented by taking a careful history, using the smallest amount of drug in the lowest concentration, aspirating before injecting, injecting slowly,

refraining from injecting into highly vascular areas and by not exceeding the maximal recommended dose. The use of a preoperative barbiturate does allay apprehension but probably does not act to prevent CNS stimulation unless hypnotic doses are given.

Treatment

The treatment of local anesthetic reactions is symptomatic. Below is an outline to be used in this treatment. The first five are commonly known as "caine" reactions.

Treatment of Reactions to Local Anesthetics²

- | | |
|--|--|
| 1. CNS Stimulation
(excitability, tremors, convulsions) | Intermittent positive pressure oxygen (IPPO ₂), IV succinylcholine or barbiturate, as Pentothal or Nembutal. |
| 2. CNS Depression | IPPO ₂ , no analeptics. |
| 3. Respiratory Arrest | IPPO ₂ . |
| 4. Hypotension | IPPO ₂ , vasopressors as Vasoxyl, Wyamine. |
| 5. Cardiac Arrest | IPPO ₂ , cardiac massage, vasopressors, epinephrine. |
| 6. Allergy
(antigen-antibody) | Antihistamines. |
| 7. Anaphylaxis
(probably due to release of histamine) | Same as circulatory collapse and respiratory failure. |

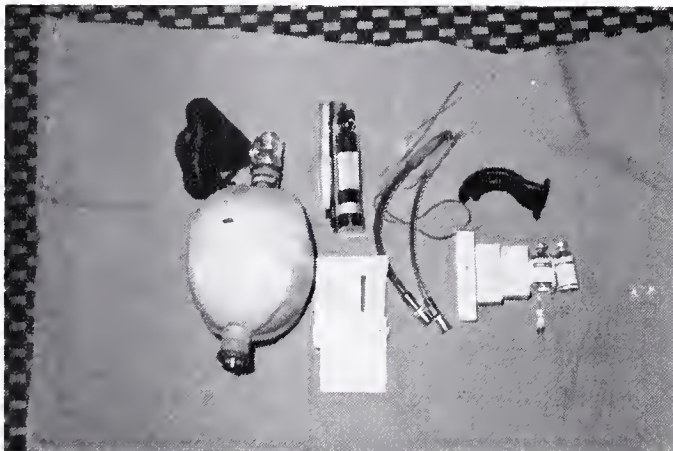


FIGURE 1

Resuscitation equipment: Self inflating resuscitator (Ambu), laryngoscope, endotracheal tubes, oropharyngeal airways, syringes, needles, calcium gluconate, succinylcholine, mephentermine, pentobarbital sodium, methoxamine, epinephrine.

Despite all precautions, a reaction may occur. It must be treated promptly and energetically. Proper equipment in working order (Fig. 1) must be *immediately* available; all areas where local anesthetics are used must have this equipment—be they doctors' or dentists' offices, emergency rooms, clinics or on the wards.

Note that positive pressure O₂ is used in virtually all of the reactions. This means a method of inflating the lungs must be available, such as an anesthesia machine, hand held respirator (AMBU), or bag and mask. (Fig. 2) A simple



FIGURE 3

Resuscitation with simple bag and mask. Note that the patient's head is extended, and that the jaw is held forward with the little finger. Oxygen is run into the tail of the bag at 6 liters per minute.



FIGURE 4

Maintaining the airway in a spontaneously breathing patient. Note the oral airway in place, the extended head and chin, and the jaw pushed anteriorly with the fingers.

oxygen mask hung on the patient's face is of no value whatsoever if the patient is not breathing! A bag and mask with oxygen supply (even compressed air) is adequate. (Fig. 3) If O₂ or air is run in at 6 liters per minute, the bag can be emptied every few breaths and no CO₂ built up. Mouth to mouth resuscitation is used if no other method is available. Of course, it must be made certain that the airway is open and the lungs are being inflated. (Fig. 2) Oropharyngeal airways or even endotracheal tubes are used for this purpose. Even with an oropharyngeal airway in place it is frequently necessary to extend the head, pull up on the chin, and bring the jaw anteriorly by lifting on the angles of the jaw to open the airway. (Fig. 4) These maneuvers bring the tongue away from the posterior pharyngeal wall.

Besides oxygen, CNS stimulation by local anes-

COCAINE and PROCAINE REACTION

(MAY ALSO BE DUE TO PONTOCAINE, METYCAINE, NUPERCAINE)

RECOGNIZE EARLY SIGNS!
PREVENT NEEDLESS DEATH!

CAUSED BY HIGH BLOOD LEVEL
FROM TOO RAPID ABSORPTION

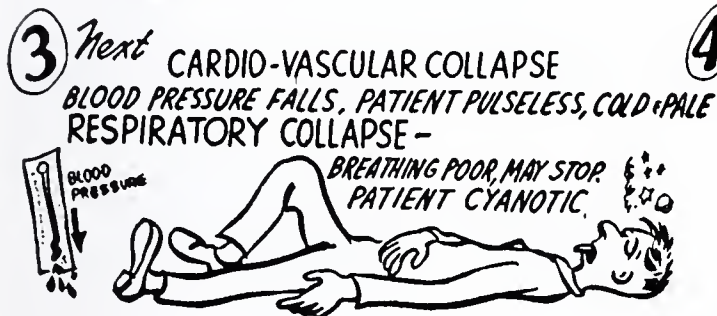
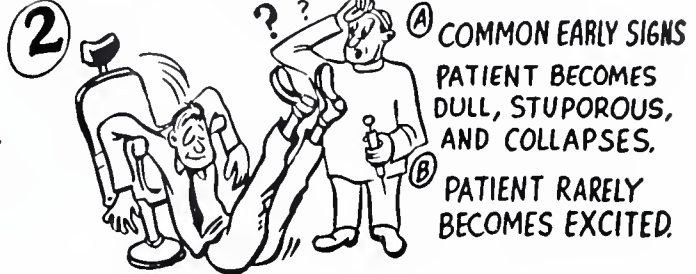
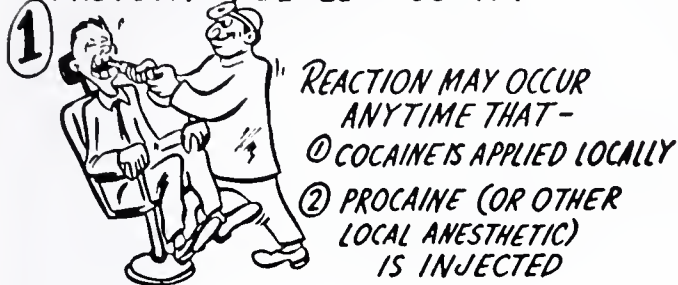


FIGURE 2A

CORRECT TREATMENT

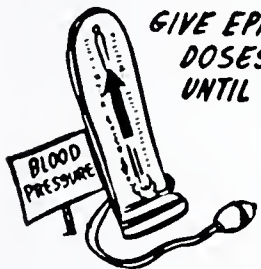
I GIVE OXYGEN

- A. PROVIDE ADEQUATE AIRWAY.
- B. SUPPLY OXYGEN BY BAG AND MASK.
- C. ARTIFICIAL RESPIRATION BY SQUEEZING BAG REGULARLY, MASK TIGHT ON FACE.
BE SURE CHEST EXPANDS WHEN BAG IS PRESSED.



II ELEVATE BLOOD PRESSURE

GIVE EPHEDRINE IN 5 MINIM (15 MG)
DOSES INTRAVENOUSLY. REPEAT
UNTIL B.P. RETURNS TO NORMAL.



III STOP CONVULSIONS

GIVE PENTOTHAL INTRAVENOUSLY UNTIL
CONVULSIONS STOP. (A FEW CC. OF 2½%
SOLUTION USUALLY ENOUGH. 3-5 CC.)
REPEAT IF CONVULSIONS RECUR.



WHAT'S UP, DOC?
DID I SCARE YOU?



**CORRECT TREATMENT WITHOUT DELAY
WILL PREVENT A NEEDLESS DEATH!**



FIGURE 2B

INCORRECT TREATMENT

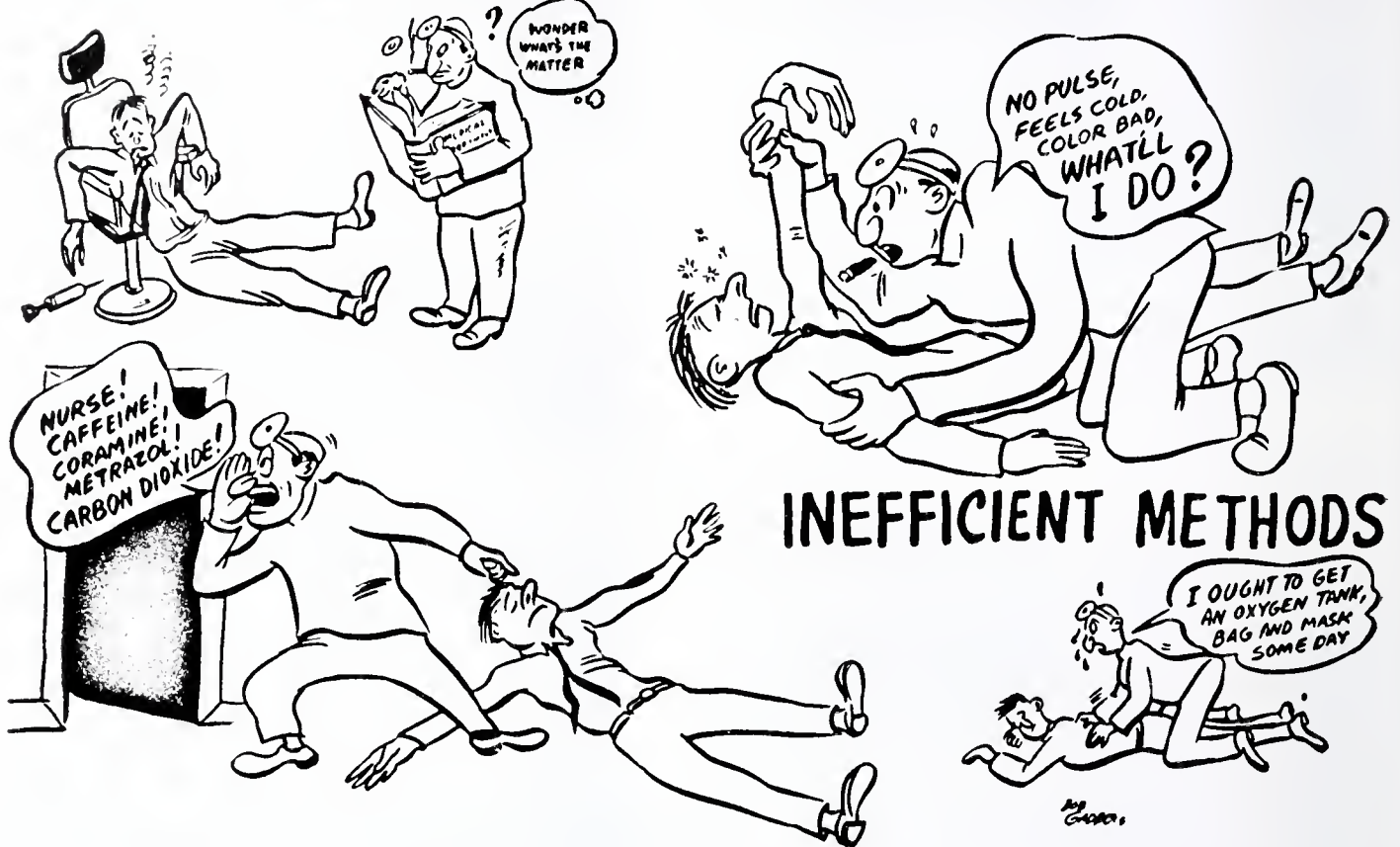
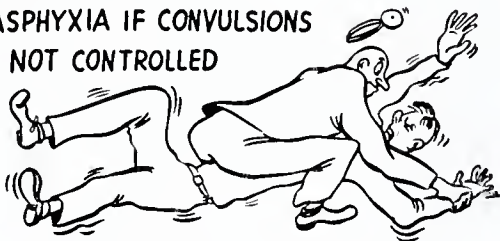


FIGURE 2C

Incorrect treatment of cocaine or similar drug reaction.

**FATAL DAMAGE TO BRAIN
FROM ASPHYXIA IF CONVULSIONS
ARE NOT CONTROLLED**



**DELAY AND BUNGLED TREATMENT
IS ALL THAT'S NEEDED....**

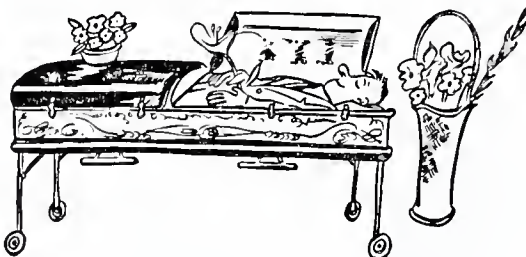


FIGURE 2D

Results of incorrect treatment of cocaine and similar drug reactions.

thetics may be treated intravenously with either a barbiturate or succinylcholine. It was formerly thought that barbiturates were the treatment of choice for this difficulty. They, and oxygen may be the best treatment for stimulation short of

convulsions. If convulsions occur, IV succinylcholine is thought to be better.¹¹ After a convulsion, there is usually CNS depression and the barbiturates add to this. Succinylcholine does not cause CNS depression but permits oxygenation of the patient and stops the convulsion. Of course, $IPPO_2$ must be available (as indeed it should be). Oxygen, if given early, may prevent a convulsion from occurring and is indicated whenever a local anesthetic reaction is thought to be developing. $IPPO_2$ is the treatment of choice for respiratory arrest and CNS depression.

Hypotension, as previously stated, may occur from the negative inotropic and vasodilating effects of local anesthetics. It is treated with $IPPO_2$ and vasopressors as Vasoxyl or Wyamine. These must be given intravenously in small doses until the desired effect is attained. They are absorbed too slowly to be effective if given by the intramuscular or subcutaneous route.

While treating a local anesthetic reaction, the possibility of cardiac arrest must be considered—as it may develop rapidly. Palpation of the pulse is one of the first things to be done in treating any reaction. Is the pulse full and bounding? Weak? Or absent? If absent, $IPPO_2$ and closed

chest cardiac massage are performed. If these are ineffective, then other therapy is indicated. (Reference 5, page 330). True allergic reactions may result in urticaria, wheezing, bronchospasm, etc., after repeated exposure to the drug. Cross sensitization may occur (i.e. procaine, tetracaine). This is treated with antihistamines.

Sudden circulatory collapse from anaphylaxis may occur after injection or application of infinitesimal quantity of the drug, even though there was no previous exposure. This is probably due to histamine release. Treatment is the same as for circulatory collapse and respiratory failure.

In addition to the above reactions, there may be an occasional idiosyncratic reaction—a response not ordinarily expected of the drug—such as tachycardia, hypertension, hallucinations, etc. The treatment is still symptomatic.

Management of the Patient Who Is

"Allergic" to a Local Anesthetic

Not infrequently a patient will present himself as being "allergic" to a local anesthetic ("Novocaine" is usually named as the offender). How is this patient to be managed? As we know, true allergic reactions are rather rare, so this is probably some other type of reaction. A careful history usually throws a great deal of light on the problem. Did the patient develop a rash? Wheezing? Become unconscious? Become faint? Excited? If excitement is suspected a small amount of saline may be injected as a test dose. The patient is told this is an anesthetic solution. Resultant apprehension may confirm the diagnosis. True allergy may be uncovered by intradermal injection of a small amount of dilute anesthetic. A wheal will form if the patient is allergic. Since severe reactions may occur even from this small amount of drug, resuscitation equipment must be ready. A blood pressure cuff placed on the injected arm can be pumped up quickly to prevent further absorption. If hypersensitivity is suspected as the cause of the reaction, a small amount may be dropped into the nose as vital signs are monitored.¹² A drop in blood pressure would

warn against using the drug.

Many times a drug reaction was the result of inadvertent intravascular injection, resulting in intoxication from a high blood level of the anesthetic. There is no safe test to determine if this is what happened.

These tests may be done with the drug that is suspected to be the offender, but it is safer and more logical to use a drug outside the suspected drug's family—for example, test with an amide if a benzoic acid ester is suspected. Then, if the test drug seems satisfactory, it may be used for the contemplated procedure with a fair degree of safety. Patients are less likely to develop reactions to drugs outside of the family of the offender, rather than in the family. Even in small amounts, the rare patient may develop a severe reaction, so means of resuscitation, as always, should be available.

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- "Novocaine" (procaine, Winthrop Labs.)
 "Pontocaine" (tetracaine, Winthrop Labs.)
 "Carbocaine" (mepivacaine, Winthrop Labs.)
 "Xylocaine" (lidocaine, Astra)
 "Pentothal" (thiopental, Abbott)
 "Nembutal" (pentobarbital, Abbott)
 "Vasoxyl" (methoxamine, Burroughs, Williams)
 "Wyamine" (mephentermine, Wyeth)
 "Ambu" (Air Shields)

Hemostasis and Support Procedures In Abdominal Hysterectomy*

Eugene T. Ellison, M.D.** and William B. Harrell, M.D.***

THE PROBLEM

The refinements in the art of abdominal hysterectomy usually go hand in hand with the experience that the gynecologic surgeon gains over the years.

It so happens that the authors have practiced during the past three decades when the techniques have ranged from a routine subtotal hysterectomy to the more refined techniques presented in this paper.

Our experience confirms the usually accepted facts that hemorrhage and pelvic relaxations are among the most frequent complications of abdominal hysterectomy.

In long term follow-up studies we have found a few simple procedures which require minimal operating time and which will prevent, to a great extent, hemorrhage and pelvic relaxation complications found often in abdominal hysterectomy.

HEMOSTASIS

Hemorrhage in the immediate convalescent period following gynecological surgery in patients otherwise making an uneventful recovery continues to be of much concern to the pelvic surgeon.

In addition to adequate hemodynamics, the effective suturing of the ovarian, uterine and vaginal arteries diminish postoperative bleeding. Vaginal cuff bleeding from a necessarily contaminated area is always a problem. Chromic # 0 Sutures are usually used on the pelvic ligaments and these sutures are augmented by # 30 Cotton Sutures, which are used for the major arteries encountered in the broad ligaments.

Our present technique further includes chromic sutures placed through the lateral edges of the vaginal cuff including enough of the lateral vaginal connective tissues containing the small vessels that might bleed during the healing process. Lateral traction is placed on the angle suture and a medial lock suture is placed through

the anterior and posterior vaginal walls, completing the angle-lock suture technique on the vaginal cuff. A cotton suture is then placed approximately one-half inch down the vaginal wall to ligate the ascending vaginal arteries.^{1,2} The cotton suture does not penetrate the vaginal wall and should not embrace too much tissue, as it will act as a foreign body and later be expelled. Bleeding encountered since these precautions have been used is usually of a minor nature. If this type bleeding is encountered it can be handled by vaginal sutures in a local procedure. We have encountered only one major bleeding in the last 1,000 abdominal hysterectomies and this was from the uterine artery (Figs. 1, 2, 3, 4).

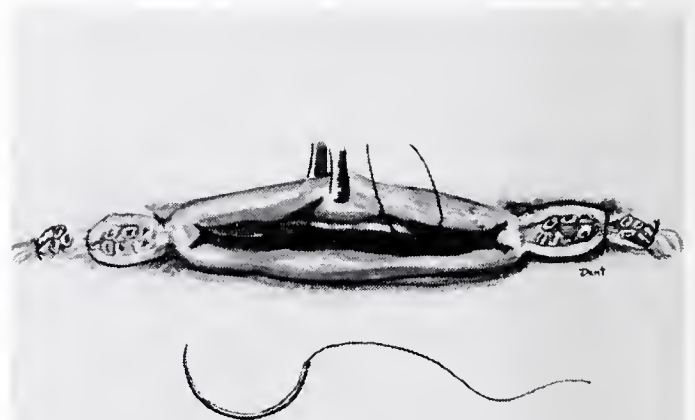


FIG. 1 - Angle suture with knot tied inside the vagina .

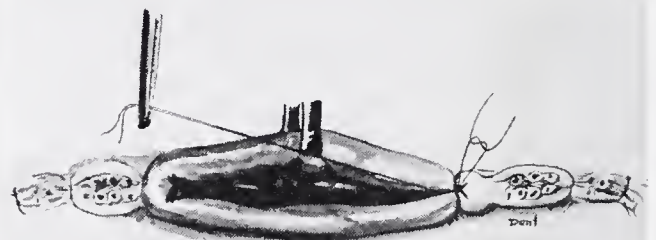


FIG. 2 - With medial traction on the angle suture a lateral lock suture is placed through anterior vaginal wall, angle tissue tuft and posterior vaginal wall .

*Presented as Scientific Exhibit, Arkansas State Medical Meeting, Hot Springs, May 1, 1966.

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FIG. 3- With lateral traction on angle suture a medial lock suture is placed through the anterior and posterior vaginal walls, completing the angle-lock suture technique on the vaginal cuff.

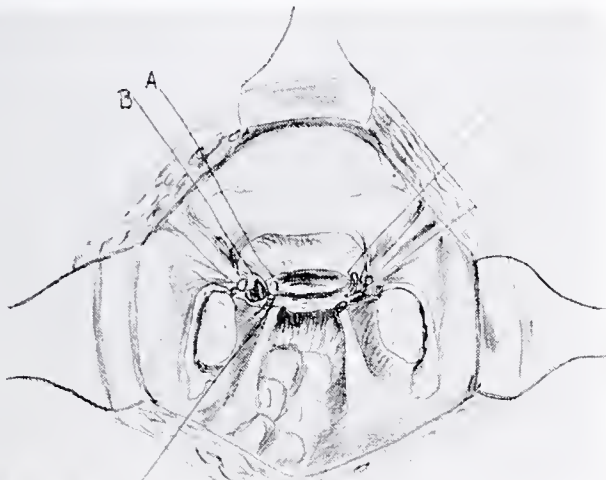


Figure 4
LIGATION OF VAGINAL ARTERIES WITH COTTON SUTURE

SUPPORT PROCEDURES—PROPHYLAXIS AND REPAIR

Symptomatic pelvic relaxations have been encountered as early as one to two months postoperative and as late as thirty years. There have been fewer of these problems during the past five years since we have been attempting to repair relaxations and prevent their recurrence at the time of abdominal hysterectomy. Postoperative pelvic relaxations occur in our cases after abdominal hysterectomy just as frequently as they do following vaginal hysterectomy. Many of the vaginal hysterectomies are done primarily for the correction of relaxed ligaments. It is our contention, as well as others, that added attention to pelvic support at the time of abdominal hysterectomy, accomplished in minimal operating time, will prevent many of these complications.³

The following procedures are recommended:

1. PUBOCERVICAL FASCIA

It is advantageous to deeply dissect the space of Retzius in order to free the pubocervical fascia.

This allows the operator to approximate the vaginal cuff more snugly to the lateral vaginal support tissues under less strain (Fig. 5).



Figure 5
DEEP DISSECTION OF RETZIUS SPACE

2. TRANSABDOMINAL VAGINAL EXAMINATION

The insertion of doubly gloved fingers into the vagina through the abdomen will give as good an evaluation of actual and potential relaxations as can be obtained from the vaginal side. Vaginal length can be estimated (Fig. 6).

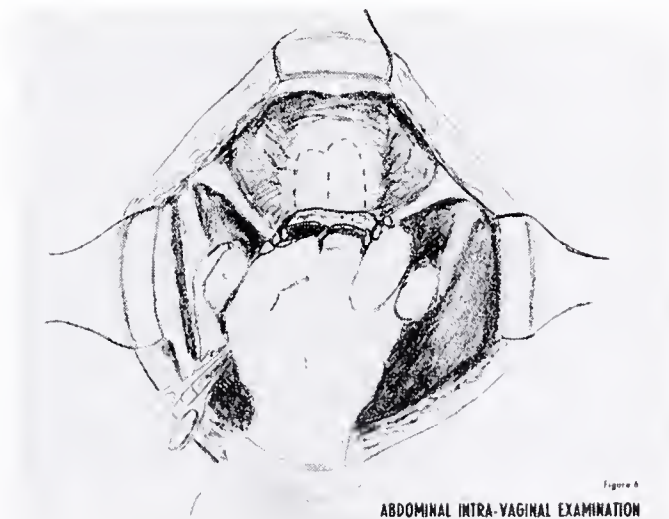


Figure 6
ABDOMINAL INTRA-VAGINAL EXAMINATION

3. VAGINAL WALL SUPPORT

Should the anterior or posterior vaginal wall appear to sag and is sufficiently long, the bladder can be dissected down and an inverted wedge of the wall removed, or the posterior vaginal wall similarly dissected. Subsequent approximation of the shortened medial vaginal segment to the uterosacral support structures may be adequate to care for a mild cystocele (Fig. 7).

4. PREVENTION OF ENTEROCELE

A much older, but frequently neglected, proce-



Figure 7
EXPOSURE OF ANTERIOR VAGINAL WALL TO BE EXCISED

ture consists of plication of the cul-de-sac peritoneum between the uterosacral ligaments. If a segment is removed, much as is done during vaginal repair, subsequent enteroceles are prevented and rectoceles are less likely to occur as the bowel is held at a higher level.⁴⁻⁷ The fibrous strands of the uterosacral ligaments are exposed, and can be approximated medially and attached to the vaginal cuff at the desired tension. Simple sutur-

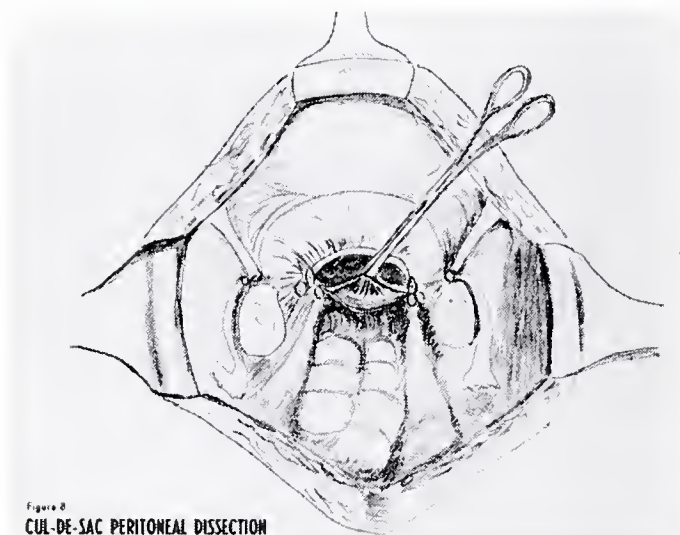


Figure 8
CUL-DE-SAC PERITONEAL DISSECTION

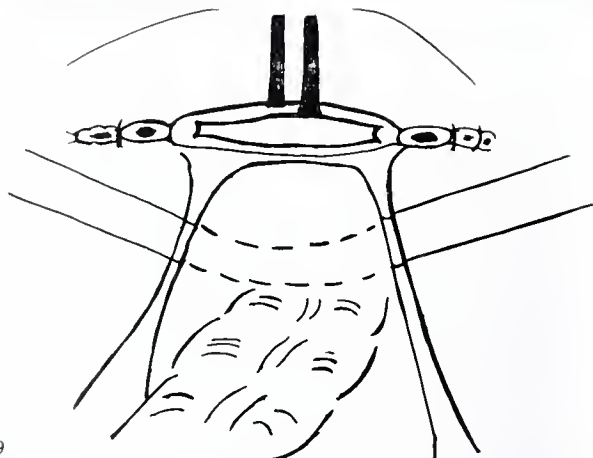


FIG. 9
PARTIAL OBLITERATION OF THE CUL-DE-SAC

ing of the uterosacrals in the midline for 1-1½ inches is simpler, but the previous procedure with removal of the potential enterocele sac is preferred (Figs. 8, 9).

5. TRANSVERSE VAGINAL CLOSURE

Another procedure for securing pelvic support consists of approximating the stumps of the broad ligament in the midline, thus closing the vagina in an anteroposterior line where this much relaxation is apparent. Space occupying tumors often are accompanied by this defect (Fig. 10).

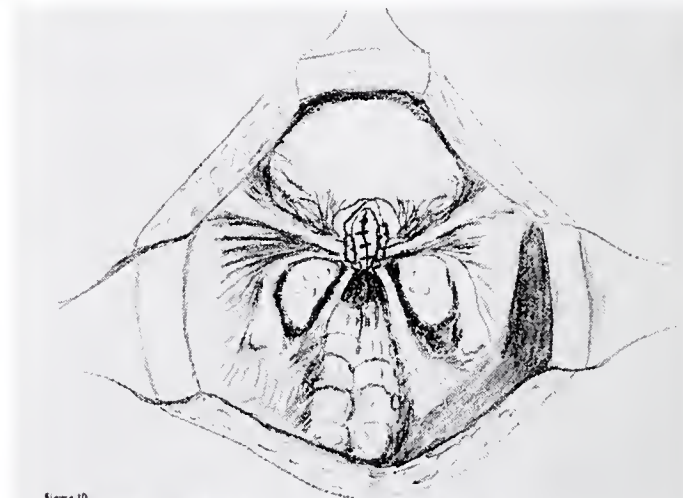


Figure 10
MIDLINE APPROXIMATION OF BROAD LIGAMENT FOR RELAXATION

6. URETHROVESICAL FIXATION

Having previously considered the necessity for intra-abdominal bladder support or urethral fixation for stress incontinence, these procedures can be carried out with the operator or his assistant evaluating suture placement by intravaginal fingers usually introduced from below.⁴⁻⁷ Urethral fixation to the pubic symphysis or lateral vaginal fixation to the pubic rami or Cooper's ligament will add to the well repaired bladder floor. However, this last procedure may not be so necessary

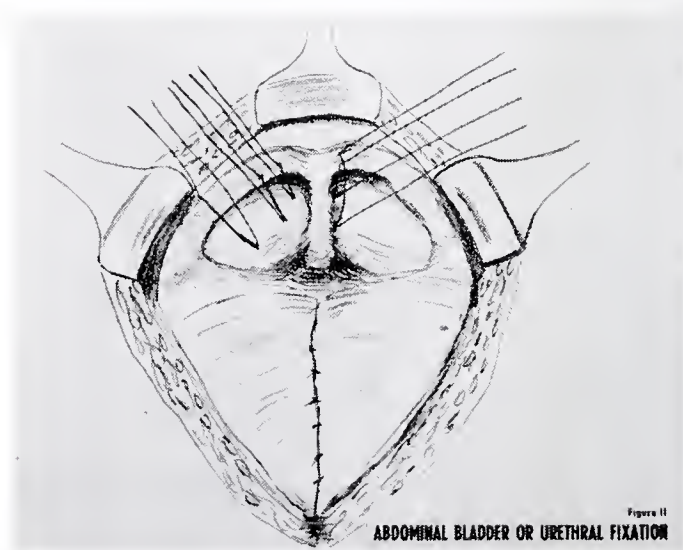


Figure 11
ABDOMINAL BLADDER OR URETHRAL FIXATION

if the structures around the vaginal cuff are adequately sutured. Often with the vaginal cuff supported high, a posterior repair is eliminated and operating time reduced. Except in the nulliparous patient, some of these procedures have been used in all hysterectomies for the past five years.

DISCUSSION

In spite of the attention drawn to the vaginal hysterectomy and the high percentage of these procedures in some centers, the majority of hysterectomies continue to be done by the abdominal route.⁸ Broadening indications for hysterectomy, including intractable uterine bleeding, carcinoma in situ, adenomyosis, subinvolution, extensive endometriosis, disabling protracted dysmenorrhea, symptomatic retroversion, needs for sterilization, atypical hyperplasia, recurring benign postmenopausal bleeding, pyometria, interstitial pregnancy, hydatid mole and post radiation therapy for fundal adenocarcinoma, account for the continuing frequent use of the abdominal approach to this surgery. Our use of the vaginal approach in 33 percent of our cases is primarily related to pelvic relaxations with minimal intra-abdominal pathology. In a previous publication somewhat criticized,² attention to the transabdom-

inal removal of cervical stumps and in another publication emphasizing inadequate or incomplete pelvic surgery,³ our purpose was to show the value of not only removing pathology but preventing subsequent surgical procedures by preventive gynecology.⁹ It is not our desire in this or any other publication to emphasize the abdominal approach as against vaginal surgery, but to summarize adequate gynecological repair and hemostasis with the abdominal approach.

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Dissociation of Delayed Hypersensitivity and Antibody Synthesizing Capacities in Man

V. A. Fulginiti et al (University of Colorado Medical Center, Denver) *Lancet* 2:5-8 (July 2) 1966

Two pairs of sibs showed thymic dysplasia (similar to that seen in Swiss-type agammaglobulinemia), lymphopenia, and normal immunoglobulins. Three of the children died before the age of 2 years after illnesses characterized by recurrent *Pseudomonas* and *Candida* infections. Pathological findings included severe thymic atrophy, lymphoid depletion, and normal plasma cells. The fourth child, still alive, has had repeated infections; he has impaired delayed hypersensitivity, severe lymphopenia, and normal immunoglobulins. The findings in these children indicate that delayed hypersensitivity in man is not related to circulating antibody synthesizing capacity.

Pyeloureteral Duplicitas in the Child (An Attempt at Conservative Surgical Treatment in 24 Cases)

J. Cendron and H. Saied (Saint-Vincent-de-Paul Hosp., Paris) *J Urol Nephrol* 72:359-382 (June) 1966

In cases of pyeloureteral duplicitas it is possible to save both urinary tracts by conservational surgery when either the upper or the lower pelvis is pathological (refractory infection, serious caliectasis, subjacent megaureter with or without the vesicoureteral reflex). A pelvic-ureteral anastomosis connecting the lower pelvis with the upper ureter was performed on 24 cases. If anatomical conditions are normal surgery should not be performed; removal is indicated in pathological conditions, particularly when the parenchymatous mass is small or dysembryoplastic, or when an ectopic ureterocele or a pelvis at the extra-sphincteric termination exists.

Tetanus Prophylaxis

Purcell Smith, Jr., M.D.*

I. Introduction

Though in some countries the incidence of tetanus is quite high, there were only 271 cases reported in the United States in 1964. Yet, based on an estimate that two million doses of tetanus antitoxin are given each year in the United States, there must have been between 50,000 and 100,000 cases of serum sickness, or some type of serum reaction. So, in the question of tetanus prophylaxis we are actually as concerned with preventing tetanus antitoxin reactions as with preventing tetanus.

II. Types of Tetanus Immunity

A. Passive Immunity

This is accomplished by injection of antitoxin, primarily of equine origin, or more recently of human origin (bovine antitoxin is no longer available in the United States).

A 3,000 unit dose of equine antitoxin will result in detectable levels averaging two weeks; it is shorter in the person who has shown sensitivity to horse serum previously, or who shows sensitivity to the current injection. Mahoney and Moloney¹ in 1958 noted that only 3 of 21 patients (15%) who experienced serum sickness had even minimal acceptable antitoxin levels at 9 to 13 days; whereas, 86% of the patients who did not have serum sickness had antitoxin detectable at 9 to 13 days.

Action of the passively administered antitoxin is to combine with the toxin in the circulating blood. For a number of reasons the time relation between injury and spread of toxin is quite variable. Therefore, it is no surprise that as many as 5,000 failures of serum prophylaxis have been collected from the literature. Stallord and others² at Johns-Hopkins reported in 1954 that of 167 tetanus cases seen from 1929 to 1953, 25 patients had received antitoxin. In World War II, a number of German soldiers taken prisoner developed tetanus in spite of passive immunization; Germany used tetanus toxoid only in the Air Force and in paratroopers during World War II.

The complications which might occur after injection of a foreign serum are well known. They range from mild and transient rashes to typical serum sickness, and occasionally sudden, fatal anaphylactic shock. There is one report of fatal anaphylactic shock and death within an hour following a skin test dose of 0.1 c.c. of equine tetanus

antitoxin diluted 1:10. The incidence of serum sickness is reported variously from 5% to 15%, and may occur with a negative skin test.

In view of the reported failures following equine tetanus antitoxin, and the high incidence of complications, Eckmann³ seems to feel that administration of antitoxin is optional in the event of injury (in a person not actively immunized). On the other hand, Edsall⁴ (1959) does feel that antitoxin should be given if the patient has not had active immunization. He recommends 3,000 to 5,000 units of equine antitoxin if the patient is seen on the day of the injury. If delayed beyond the first day or in all cases of gunshot wounds, compound fractures, and wounds not readily debrided, he advises 6,000 to 10,000 units or possibly more. Half of the above doses are adequate in children under 10 years of age.

As to testing a patient for equine antitoxin, Edsall⁵ prefers an actual antitoxin tolerance test over conjunctival or intracutaneous testing. This consists of subcutaneous injection of a small dose, such as 0.1 milliliter of 1:100 dilution of equine antitoxin (1.5 units), and the observation of the patient for 30 minutes. Presumably, the patients with a history of allergy to horses, prior reactions to serum, etc., have been screened out already. If no general symptoms develop in 30 minutes, the remainder of the dose may be given. He does not recommend "desensitizing" by small, gradually increasing doses. If this procedure is necessary in order to get the full dose into the patient, it is probably being broken down so rapidly as to not be effective. Human antitoxin should be used in such instances.

Skudder⁶ in 1964 stated that there is no longer any indication for use of equine antitoxin except when human tetanus immune globulin is not available. As indicated previously, human tetanus immune globulin is derived from serum of persons who have been hyperimmunized against tetanus. Possibly 200,000 human donors would be necessary to provide human antitoxin equivalent to the equine antitoxin currently used.

A tetanus antitoxin level of 0.01 unit per milliliter of serum is generally accepted as the critical level for protection. From a review of veterinary literature,⁷ it was noted that in both the guinea

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pig and the horse, a level of 0.01 unit per milliliter could be obtained for six or eight weeks by giving 2.5 units homologous antitoxin per kilogram of body weight.

The 2.5 unit per kilogram body weight figure led to initial estimates that 200 units human tetanus immune globulin was probably a protective dose; for additional safety, 250 units was recommended.

Studies by Rubbo and Suri^{8,9} revealed that a 200 unit dose of human antitoxin gave an average level of 0.01 unit per milliliter at 21 days; a 350 unit dose gave an average level of 0.05 unit per milliliter at 21 days. They suggest a 400 unit dose in adults and 200 units in a child under age 14 years.

Smolens and others¹⁰ compared the persistence in human circulation of horse and human tetanus antitoxin. Half-life of the horse globulin was calculated to be between 7 and 14 days. Half-life of the homologous antitoxin was about four weeks, and this compares favorably with Rubenstein's¹¹ observations of a half-life between three and a half and four and a half weeks.

Rubbo and Suri⁹ list three outstanding advantages of homologous antitoxin over heterologous equine antitoxin: 1) Practically no allergic complications from human antitoxin 2) Concentration of human antitoxin in the patient is predictably constant, whereas heterologous serum levels are unpredictable and 3) Homologous antitoxin gives high and protective levels of circulating antitoxin at much lower doses than is possible with heterologous antitoxin (possibly resulting in less likelihood of interference in combined active-passive immunization).

Assuming that human tetanus antitoxin will be in short supply, at least for a while, it would seem wise to be selective in its use. The following suggestions are modified from Rubenstein:¹¹ 1) Patients who are known to be sensitive to horses or horse serum 2) Patients who have had prior injections of horse serum 3) Patients who have a history of asthma, eczema, drug allergy, etc. 4) Patients who have extensive burns.

B. Active Immunity

The surest and safest vaccine on the market today is tetanus toxoid. The World War II experience of the United States Armed Forces revealed 12 cases of tetanus among 2,734,819 wounds and injuries. Six of these were in patients who had not been properly immunized, and two were in pa-

tients who did not receive boosters at the time of injury.

Though we are all aware of this excellent means of providing active immunization, there is evidence that its use is not as widespread as we might suspect. A recent study by Furste and others¹² at Columbus, Ohio, revealed that 46% of women and 28% of men admitted to emergency rooms had inadequate toxoid immunization.

The person who causes us the most concern in tetanus prophylaxis should not even exist. We have all been confronted with the injured patient who has a history of clinical allergy near horses, or some type of allergic symptoms following horse serum in the past and who has not been actively immunized with toxoid. Sometimes the blame lies with the patient, who has been advised to have tetanus toxoid, but who has not done so; all too often, however, the physician involved in the previous accident has not adequately encouraged tetanus toxoid.

There are also the instances in which it is not certain whether the patient has previously had tetanus toxoid. Suggestions to remedy this have included "dog tags", medical identification cards, a central registry by counties, or states, and even a tattoo mark behind the ear.

When one considers that possibly 50% of tetanus cases occur in individuals without apparent injury, or without injury significant enough to require medical attention, he realizes that active immunization offers the only means of protection in a significant number of injuries.

Tetanus toxin, which is extremely poisonous, is rendered completely harmless by the addition of formaldehyde to the toxin, resulting in fluid toxoid. Through adsorption of alum or aluminum hydroxide, the intensive and long-lived vaccines that are most often used today are obtained.

Though there is still considerable difference of opinion as to the choice between fluid and adsorbed toxoid, studies by Suri and Rubbo,⁸ and by Eckmann,¹³ strongly suggest that adsorbed toxoid is the better antigen.

The initial dose of tetanus toxoid does not lead to a significant immunity, but only prepares the organism for reaction to the antigen. It is due to the later injections that the active production of antibodies occurs. To produce the typical "secondary stimulus" the second injection of toxoid must not follow the first too closely. A four or five week interval between the first and second

injections seems ideal, but no patient should ever have to "start over" because of delay in receiving one of his toxoid injections. Basic immunization for school children and adults would consist of two adsorbed toxoid injections (or three fluid toxoid injections) at intervals of four or five weeks, and then a reinforcing dose six to twelve months later.

In persons who previously have been adequately actively immunized against tetanus, revaccination stimulates an antibody production of many times that previously obtained. There are instances of booster response after intervals as long as 20 to 25 years.¹³ and we still do not know the actual time limit for an effective "booster response".

Though there are some data suggesting that response to a booster does might be somewhat delayed if there has been several years since immunization, still the response seems adequate for ordinary circumstances. King and others¹⁴ reported 51 subjects who received a toxoid booster 14 to 19 years after the last previous injection. By the tenth day, all subjects had a titer of 0.01 unit per milliliter, and 94% had titers of 0.1 unit per milliliter.

Since there does exist the possibility of an inadequate response to a booster dose, after an interval of many years, it is generally recommended that a routine booster be given every five to ten years. This policy also helps maintain a minimum level of antitoxin for the minor injuries that do not receive medical attention.

This possibility of a delayed or inadequate response to a booster at the time of injury, after an interval of many years since the last toxoid injection, has resulted in recommendations that antitoxin be given along with the toxoid booster under certain circumstances. Edsall⁵ feels that 1,500 units equine antitoxin, or 250 units human antitoxin, should be given along with the toxoid booster in the rare cases that meet all three of the following criteria: 1) The interval since the last toxoid was over ten years 2) The injury is of the type that could readily lead to fulminating tetanus (gunshots, laboratory infections) and 3) A delay of over 24 hours has occurred between injury and definitive medical attention.

On the other hand, Eckmann¹³ states that he would never give antitoxin with a booster dose of toxoid, no matter what the circumstances. He feels that the toxoid booster at the time of injury

has to confer immunity as rapidly as possible, and that any interference with this secondary response is dangerous. He cites his own study in which antitoxin titers were determined 90 days after simultaneous administration of 3,000 units equine antitoxin, with a second injection of precipitated toxoid. These titers were considerably lower than those obtained 90 days after a second injection of precipitated toxoid alone.

There is fairly general agreement that there is no need for a toxoid booster, in the event of injury, if there has been a booster within the past 12 months.

III. Reactions to Tetanus Toxoid

Though reactions to tetanus toxoid are infrequent, the incidence appears to be increasing. Both Edsall⁴ and McComb¹⁵ note that delayed reactions to toxoid are increasing in frequency. Particularly in military and industrial personnel where routine boosters, or wound boosters, have been given frequently.

In this office, we¹⁶ have had experience with 13 patients who demonstrated hypersensitivity to tetanus toxoid. The symptoms ranged from excessive local reactions to generalized rashes, and in one instance, a truly anaphylactic reaction. Passive transfer was positive in the three patients with systemic reactions, and they showed strong direct skin tests with toxoid diluted 1:10. However, 25% of control subjects showed some degree of skin test reactivity, and it was felt that intracutaneous testing was of very limited value in predicting difficulty from tetanus toxoid. Hemagglutination and gel diffusion studies have likewise proven disappointing in this regard.

If there is any doubt as to a patient's tolerance for toxoid, and if an emergency booster is needed, the best procedure would seem to be subcutaneous or intracutaneous administration of a small dose such as 0.05 c.c. or 0.10 c.c. of toxoid. This would afford some protection, and the dose could be repeated daily if necessary.

IV. Combined Use of Antitoxin and Toxoid

There have been a number of reports advocating, or opposing, simultaneous administration of antitoxin and toxoid to a previously unimmunized person. Eckmann³ feels very strongly that simultaneous immunization is indicated, and goes so far as to say that antitoxin should never be given without a dose of toxoid. To support his recommendation, he reports a group of 50 persons who received one toxoid injection (precipitated) only,

and simultaneously with it 1,500 to 3,000 units of equine tetanus antitoxin. When a booster dose of toxoid was given one to six years later, all persons showed high levels of antitoxin within 11 days, and half of these had increases within four days (none had minimal detectable levels of 0.02 units per milliliter prior to the booster).

He also reports a group of 200 patients who received a precipitated toxoid injection and tetanus antitoxin 1,500 to 3,000 units at the same time; then 21 days later, a second toxoid injection was given. All these persons showed measurable levels of antitoxin one to six years later, and all showed typical "booster" responses to booster doses of toxoid.

Rubbo and Suri¹⁷ performed an excellent study evaluating combined active and passive immunization in man comparing human antitetanus globulin with equine antitoxin. It was apparent that the immune response was weaker when toxoid was given with 400 units human antitetanus globulin than when given with 1,500 units equine antitoxin (See Table). Those immunized with adsorbed toxoid responded to the second injection with higher levels than the corresponding group who received fluid toxoid, but all had protective levels. However, the rate and extent of antitoxin production after a booster injection of toxoid, given one year later, followed a similar pattern irrespective of the initial immunization, and was quite adequate by any standard.

It is important to note that both groups (II and IV) receiving equine tetanus antitoxin passed through a nonimmune phase at the sixth week (and probably earlier) when the antitoxin titers were less than 0.002 unit per milliliter; in contrast, the groups (I and III) receiving human antitetanus globulin were at no state susceptible, since the antitoxin level never fell below 0.01 unit per milliliter. The authors expressed concern that 250 units human antitetanus globulin might result in an interval of two or three weeks (from about the fifth to eighth week) in which the antitoxin titer is below the level of 0.01 unit per milliliter. They concede that 250 units of human antitetanus globulin is much better than 1,500 units equine tetanus antitoxin as far as persistence of protective levels, and that this dose would be quite satisfactory in most instances of simultaneous immunization. However, they feel that in a larger individual (over 150 pounds) or in an injury where risk of tetanus is high, the larger dose of

400 units should be given.

V. Local Treatment and Antibiotics

Good wound care is probably the single most important factor in the prevention of tetanus in fresh wounds. This implies thorough cleansing of the wound and removal of all foreign bodies and devitalized tissue. This is important since the tetanus bacillus is an anaerobic organism and can grow only in necrotic tissue which has no blood supply. Antitoxin and antibiotics can never substitute for proper surgical care of injuries in the prevention of tetanus.⁶

Although the tetanus bacillus is extremely sensitive to penicillin and tetracyclines, these drugs will be distributed effectively through the blood principally to living tissues where oxygen supply is plentiful. Since the tetanus bacillus can proliferate only in tissue without blood supply, antibiotics usually reach a focus of infection in insufficient amounts to be effective. They are no substitute for thorough cleansing and debridement, and are indicated primarily in grossly contaminated wounds, or wounds with evidence of clinical infection by organisms other than tetanus bacillus.

Cox and others¹⁸ in England have recently gone so far as to recommend complete reliance on wound cleaning and antibiotics, and tetanus toxoid injection for prevention of tetanus. They have used no antitoxin in four years, and have had one case of tetanus in four years which compares favorably with the previous four years using antitoxin. Nevertheless, this regimen has not gained wide acceptance as yet.

VI. Summary and Conclusions

Tetanus could be essentially eliminated and serum sickness sharply reduced in the United States, by concerted efforts to actively immunize the population with tetanus toxoid. The adult population (particularly female) is the segment most in need of this immunization. Initial immunization can be accomplished by two injections of precipitated toxoid four to six weeks apart, and then a reinforcing dose six to twelve months later. A routine booster dose every five to ten years will assure good response to a booster at the time of injury, and also provide some degree of protection for injuries which do not result in medical attention. Routine boosters more often than this seem unnecessary, and increase the likelihood of reaction to the toxoid.

Every patient should receive a tetanus toxoid

injection at the time of an injury, unless he has received a booster or completed his basic immunization within the previous 12 months. This toxoid injection would be a booster for the previously immunized patient, or an initial immunizing dose to the patient not previously immunized. The nature of the wound, time lapse between injury and definitive treatment, and number of years since the most recent toxoid immunization will determine whether antitoxin might also be indicated. In the patient who has not previously been actively immunized, clean minor wounds in which tetanus is unlikely, require good local treatment and the first toxoid injection. Other wounds in the patient who has not been actively immunized require good local treatment, the first toxoid injection, tetanus antitoxin, and possibly antibiotics. If human antitoxin is available, it is preferable, particularly if there is evidence of sensitivity to horse serum, or in an atopic individual. Due to the limited supply of human antitoxin it should not be used indiscriminately.

SERUM ANTITOXIN LEVEL (AVERAGE) IMMUNIZATION SCHEDULE				
	7 days after first injection	before second injection	4 weeks after second injection	2 weeks after third injection
Group I	0.07 unit/cc	0.03 unit/cc	0.10 unit/cc	9.8 unit/cc
First injection: Fluid Toxoid (10 Lf) Human ATG (400 units)				
Second injection (at 6 wks.): Fluid Toxoid (10 Lf)				
Third injection (at 1 yr.): Fluid Toxoid (10 Lf)				
Group II	0.15	<0.002	0.17	9.1
Same as Group I except 1,500 units Equine TAT instead of Human ATG				
Group III	0.06	0.02	0.16	9.4
Adsorbed toxoid (10 Lf) for each injection, with Human ATG 400 units simultaneous with first toxoid				
Group IV	0.14	<0.003	0.28	15.2
Adsorbed toxoid (10 Lf) for each injection, with Equine TAT 1,500 units simultaneous with first toxoid				

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STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF

OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., Professor, and Chairman

STACY R. STEPHENS, M.D., EDITOR

PSEUDOMYXOMA PERITONEI

Deno P. Pappas, M.D.*

Pseudomyxoma peritonei may be defined as a condition in which gelatinous pseudomucinous or mucinous material is distributed over the peritoneal surface, either as an homogenous layer or as multiple cystic areas. Probably because of its relative infrequency, very little may be found in the literature concerning this condition. A review was made of cases of pseudomyxoma peritonei diagnosed at the University of Arkansas Medical Center from 1950-1965. A total of six cases was encountered.

HISTORICAL BACKGROUND

Pseudomyxoma peritonei was first recognized and named in 1884 by Werth. Since that time occasional articles on the subject have appeared in the literature presenting illustrative cases and emphasizing some phase of the disease.

Pseudomyxoma peritonei results when mucin producing cells are released into the peritoneal cavity usually by rupture of an organ or viscus. The material is sticky and gelatinous in consistency, and of yellow or brown color. There may be variations in the gross appearance and in the reaction of the peritoneum to its presence. At times the color is gray, white, or brown, the shade depending upon the amount of hemorrhage or fatty material present. Often the gelatinous masses are in the form of huge cysts, some of which connect various portions of the bowel.

In the great majority of cases the mucinous material originates in either the appendix or ovary. Each of these organs may be involved by a pathological condition in which cyst formation occurs.

Some investigators have reported, however, that the disease may arise from less common sources, such as omphalomesenteric cysts, gallbladder, spleen, etc.⁵

A mucocele of the appendix results from obstruction at its base, usually from inflammation and scarring or kinking. The mucous cells lining the appendiceal lumen continue to secrete, and the accumulation of mucinous material results in distention of the organ and the formation of cysts. These cysts are usually small, but may become huge. With rupture, the thick tenacious mucinous material is extruded into the peritoneal cavity. Supposedly, mucous-secreting cells that are extruded implant themselves and continue to grow and secrete to produce small and large cysts. These in turn may rupture and further spread the disease. Some investigators have expressed the opinion that pseudomyxoma of the peritoneum is not a result of the presence of secreting cells themselves but rather comes about through the irritating effect of the secretion on the peritoneum. The relative rarity of the observation of viable mucous secreting cells in the pseudomyxomatous material supports that opinion.

A similar situation obtains in the ovary where the disease results from rupture of a pseudomucinous cyst. The origin of pseudomucinous cystadenomas of the ovary is not entirely clear, but an accepted explanation is that this condition arises from a teratoma in which the tall columnar endodermal epithelium overrides the other teratomatous elements. The epithelia of the pseudomucinous cysts of the ovary and mucocele of the appendix are identical.

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RESULTS

All patients with the diagnosis of pseudomyxoma peritonei at the University of Arkansas Medical Center during 1950 through 1965 were reviewed.

Incidence: Five of the six patients with the diagnosis of pseudomyxoma peritonei were found to have large ovarian tumors and large quantities of gelatinous material free in the abdominal cavity at the time of exploratory laparotomy. The sixth patient, a 62-year-old white female, had had a sub-total hysterectomy, left salpingo-oophorectomy, and appendectomy fifteen years previously for uterine myomata. Six years prior to her initial visit she had noted a gradual, painless enlargement of a left upper quadrant abdominal mass. Surgical exploration revealed a 30 x 40 cm. cystic mass of the spleen. There were no signs of tumor elsewhere, and the remainder of the abdominal exploration was negative. The right ovary was atrophic and was removed. The pathological report was pseudomucinous cystadenoma occurring in the spleen. She did well until four years and ten months later, when she had a two-month history of rapid, progressive abdominal enlargement. Paracenteses yielded tenacious gelatinous material, and a diagnosis of pseudomyxoma peritonei was made. At this time it was felt that the patient was not a candidate for any type of further therapy. She expired five months later.

During this fifteen-year period 78 patients had pseudomucinous cysts of the ovary. Thirty-six were cystadenomas and 42 were cystadenocarcinomas. Thus, five of the 78 patients with pseudomucinous ovarian lesions ultimately developed pseudomyxoma peritonei (6.4%).

Average age of the 6 patients was 57.4 years with a range of 49 to 73 years.

Five of the patients (83.3%) were postmenopausal. One patient was menopausal and had a history of abnormal vaginal bleeding. Of the postmenopausal patients, three had undergone uneventful spontaneous menopause. The remaining two patients had undergone surgical menopause.

There was no correlation with race or parity in this series.

Symptoms: The condition apparently gave little, if any, inconvenience until enlargement of the abdomen was noted. The complaint of increasing abdominal size was made by all but one patient. Her primary complaint was that of abdominal

pain. Three patients noted quite rapid distention over a 2-3 month period. Only one patient had no discernible or significant enlargement.

Three patients had histories of weight loss, despite their abdominal enlargement. One patient lost 50 pounds. In only two patients was pain associated with abdominal distention. Shortness of breath, anorexia, and peripheral edema were additional symptoms. None of the spontaneous post-menopausal patients had pelvic complaints, vaginal discharge, or bleeding.

Duration of symptoms ranged from two to nineteen months with an average of nine months. There was no correlation of duration of symptoms prior to laparotomy with duration of life following surgical treatment. There is no doubt that some of these patients had large symptomless tumors for a considerable length of time before trouble was suspected.

Treatment: Treatment consisted of exploratory laparotomy with removal of as much mucinous material as possible. None of the patients in this series received postoperative irradiation.

The amount of free gelatinous material within the peritoneal cavity was tremendous. In one patient 20 liters of the material was obtained. This patient was found to have bilateral, large, multi-loculated pseudomucinous cysts. Another patient was described as having had a large ovarian cyst and gelatinous material with a combined weight of 30 pounds. Two of the six patients were also found to have coexisting mucocèles of the appendix. A third patient was found to have a huge 30 pound left ovarian tumor in addition to pseudomyxoma peritonei. The ovarian neoplasm was reported histologically as containing both pseudomucinous cystadenoma and Brenner tumor. None of the surgical specimens revealed microscopic evidence of malignancy.

Prognosis: There were no immediate postoperative deaths. The post-operative course in all patients was benign. Average postsurgical hospital stay was 9.5 days.

Four of the patients have died from the natural course of the disease. The average length of life after the onset of symptoms was 18 months. The shortest interval between the onset of symptoms and death was 8 months, and the longest, 29 months.

The average length of life after the diagnosis of pseudomyxoma peritonei made at surgery was 9.5 months; the shortest interval was 3 months and

the longest 19 months. Two patients are still living, one 3 months following surgical diagnosis of the condition, and the other 7 years and 8 months after its diagnosis.

The latter patient is the only one who has had a subsequent surgical procedure. This 54-year-old white female had undergone spontaneous menopause at age 44. She had a one and a half year history of vague, generalized abdominal pain whose etiology was not revealed by numerous diagnostic procedures. At exploratory laparotomy in 1957, a mucocele of the appendix, pseudomucinous cyst of the right ovary, and pseudomyxoma peritonei were found. Right salpingo-oophorectomy, appendectomy, and removal of as much free gelatinous material as possible were done. She did well until early 1962, when gradual abdominal enlargement was noted. In July, 1962, she was found to have a huge distended abdomen. At laparotomy, the abdomen was filled with large amounts of mucinous material adhering to peritoneum, omentum and all viscera. There was a 30 x 16 cm. multilocular pseudomucinous cystadenoma of the left ovary. Total weight of the surgical specimens was 30 pounds. She was recently seen three and one-half years following her second exploratory laparotomy. She had a flat abdomen and was asymptomatic.

DISCUSSION

It is of greatest clinical importance to determine the actual source of the disease, the degree of malignancy that exists, if any, and the most effectual form of therapy. Generally the disease cannot be diagnosed without opening the abdomen. In males, the disease almost always arises from mucocele of the appendix, but if the disease is present and the appendix not involved, other less common sources—gallbladder, wall cyst, remnant omphalomesenteric cysts, should be investigated. In females, the ovaries should be inspected, and if they are not involved, attention should be directed elsewhere.

Clinically the condition apparently gives little if any inconvenience until enlargement of the abdomen is noted. As a rule the abdominal enlargement and distention is gradual, but at times may be quite rapid. Associated with the abdominal enlargement there may be either a gain or loss in weight. As the pressure increases, such symptoms as bearing down, urinary frequency and shortness of breath develop. Pain may be present to varying degrees, but some patients may have no com-

plaint of pain whatsoever. At times one may obtain a history of a previous sudden acute attack of pain, probably corresponding to the time of spontaneous rupture of the cyst.

Varying figures have been given by different investigators as to the association of pseudomyxoma peritonei and malignancy. Cariker and Dockerty felt that most examples of pseudomyxoma peritonei resulted from mucinous cystadenocarcinomas of low grade malignancy.² In their series this complication was present in 31.8% of the malignant cystomas and represented the most common cause of death. They also pointed out that accidental rupture of a cyst at surgery was not likely to result in peritoneal pseudomyxoma.

Masson and Hamrick found microscopic evidence of malignancy in thirteen of 30 patients with pseudomyxoma peritonei.⁸ Ruptured cystadenomas showed a 43% and unruptured cystadenomas a 27% malignancy rate. They were impressed with the relatively large proportion (50%) of bilateral ovarian involvement in ruptured cysts. In another series of unruptured ovarian cystadenomas only 25% were bilateral.

That pseudomyxoma of the peritoneum can result in death is without question. However, death may be caused not by malignant growth, but by mechanical complication arising from the presence of pseudomucinous material. One of the common complications resulting from this disease is the development of fistulous tracts between the cysts and the bowel.

Cases have been reported in which death resulted from intestinal obstruction due to large masses of pseudomucinous material in the peritoneal cavity, and to the presence of large pseudomyxomatous cysts obstructing loops of bowel. Most often scarring associated with long-standing pseudomyxoma peritonei causes obstruction of the intestinal lumen. Masson and Hamrick reported one case in which the patient died with jaundice; and they expressed the belief that obstruction of the extrahepatic biliary tree resulted from pseudomyxoma peritonei.

All investigators have indicated that in the presence of pseudomyxomatous disease the peritoneum is prone to infection. Probably the most important factor to consider is the presence or absence of malignancy in this disease. Chaffin and Le Grand stated that colloid carcinoma of gastrointestinal tract is readily distinguishable from pseudomyxoma peritonei, resulting from

ovarian or appendiceal disease. The former shows definite clinical evidence of a primary lesion in the G.I. tract, absence of a large quantity of freely floating gelatinous exudate, visceral metastasis, and the histological evidence of malignancy. They found no record of an instance of pseudomyxoma peritonei with malignant disease of the G.I. tract.

Treatment of these patients consists fundamentally in removal of the source of the disease, i.e. the ovarian cyst. In addition to the elimination of the etiologic factor, alleviation of pressure improves symptoms markedly.

In a woman who is past the menopause, removal of both ovaries and the appendix is urgently indicated. If the uterus is invaded a subtotal hysterectomy is also indicated. Some advocate saving at least one ovary in pre-menopausal women, but the surgeon should take into consideration the type of pseudomucinous cyst in the affected ovary. The general incidence of bilateral ovarian involvement in the presence of pseudomyxoma peritonei is 50%. There are instances in which the omentum is so large and boardlike that its removal is worthwhile. As much of the gelatinous material as possible should be scooped out of the abdominal cavity. According to some investigators, adhesions which cause intestinal obstruction should be freed, and any perforating injuries to the bowel should be repaired.

All reports indicate prolongation of life when both the possible sources of the disease had been eradicated. Some observers have indicated that postoperative irradiation is helpful. In many cases pseudomyxoma is mistaken for a spread of carcinoma from some intra-abdominal source, and operation is considered hopeless. However, if the disease is recognized for what it is, palliation and perhaps cure can be obtained by surgical treatment, otherwise the patient may go on indefinitely with an unrecognized non-malignant condition.

SUMMARY AND CONCLUSIONS

1. Six patients were found to have pseudomyxoma peritonei during a fifteen year period at the University of Arkansas Medical Center.
2. Pseudomucinous tumors of the ovary were diagnosed in 78 patients during this period. Only five (6.4%) patients developed pseudomyxoma peritonei.
3. No cases of malignancy were found in our series.
4. Treatment consisted of removal of the source of the disease and evacuation of gelatinous material from the peritoneal cavity.
5. Prognosis was poor with four of six patients dead 3 to 19 months post treatment.
6. Cause of death was intestinal obstruction due to cysts and adhesions.

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ELECTROCARDIOGRAM

OF THE MONTH

AGE: 18 SEX: F BUILD: Medium BLOOD PRESSURE: 90/70

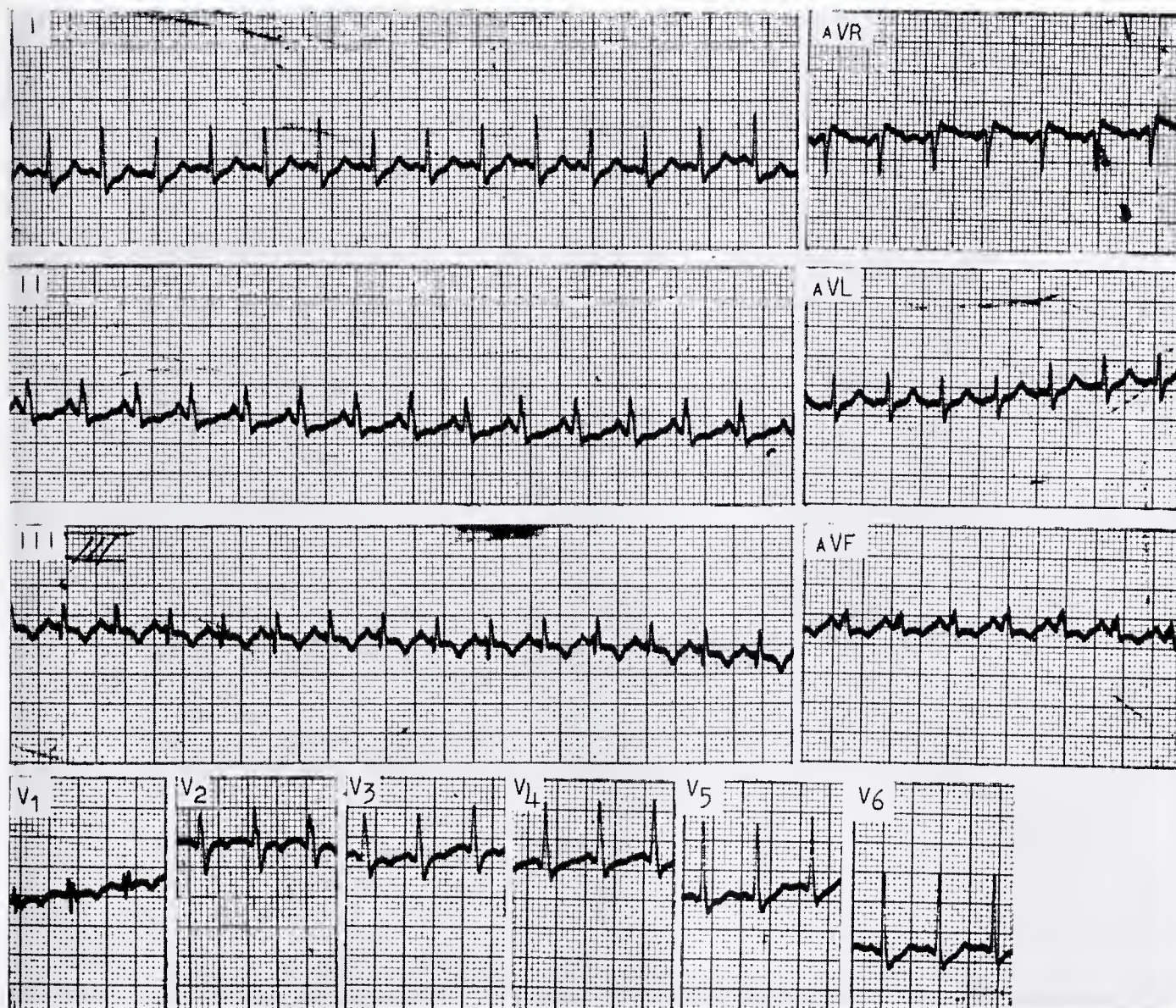
CARDIAC DIAGNOSIS: None

OTHER DIAGNOSES: Pulmonary Embolism

MEDICATION: Salicylates

HISTORY: Postpartum (stillborn) 11 days prior to admission. Headaches, stiff neck, hyperventilation. (Patient expired.)

ANSWER ON PAGE 240



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 240



HISTORY: Six-year-old white female with precocious puberty and irregular cystic lesions involving the long bones of the upper and lower extremities.

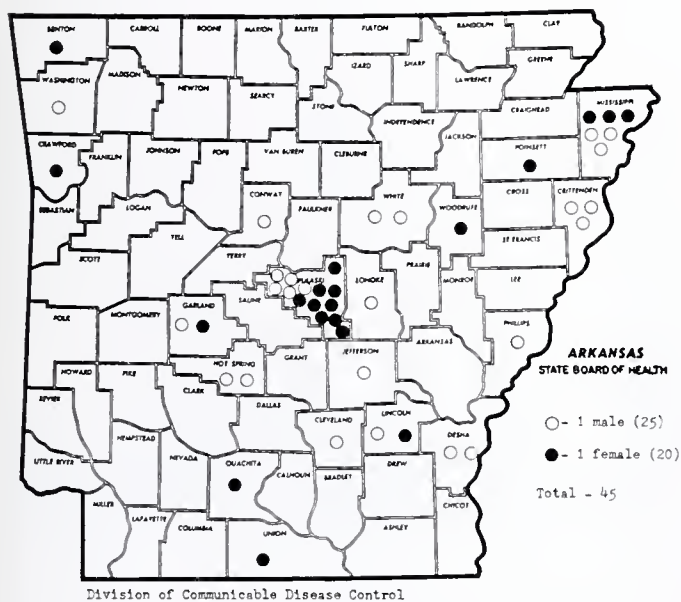


PUBLIC HEALTH AT A GLANCE

MENINGOCOCCAL MENINGITIS

There is always the possibility of under-reporting of any condition and the meningitides are no exception. The important thing in these conditions is to have a high index of suspicion of the disease and to utilize rapid laboratory assistance as well as epidemiologic data when available for the meningococcal variety. It should be obvious that following the application of general preventive measures, improved early diagnosis, therapy and isolation of the patient with concurrent disinfection, and prompt reporting, there will be a reduction in the number of cases of the

MENINGITIS, OTHER AND UNSPECIFIED TYPES 1965

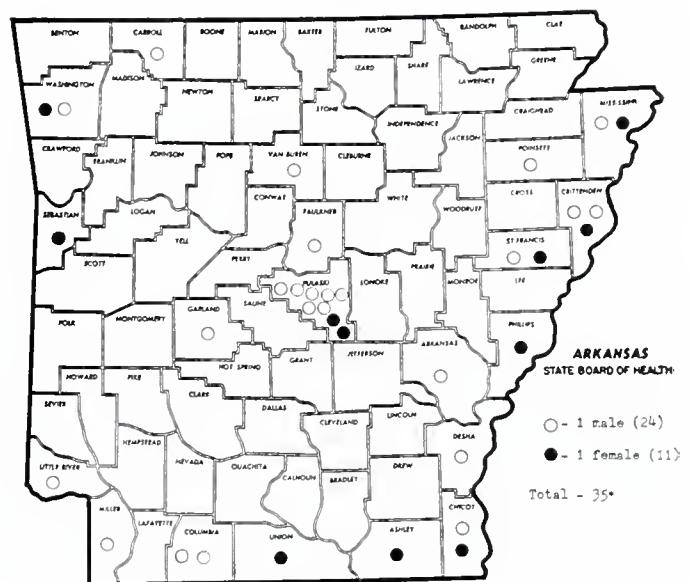


meningococcal variety. Therefore, the recognition of the other bacterial meningitides may show a relative increase as well as a similar increase in aseptic meningitis.

Sudden onset of chills or fever, intense headache, nausea, vomiting, especially projectile vomiting, collapse or shock, muscle spasms and other meningeal symptoms alerts the physician to the possibility of meningeal involvement. History of recovery from an infection recently helps in classi-

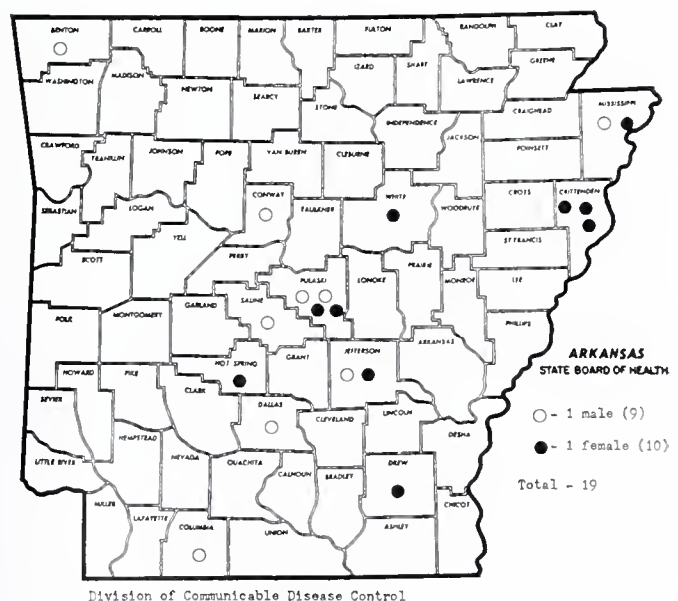
fying the disease and the selection of tests and the decision to begin a specific type therapy while

MENINGITIS, OTHER AND UNSPECIFIED TYPES 1966*



*First 30 weeks of 1966 only.

MENINGOCOCCAL INFECTIONS 1965



awaiting laboratory confirmation. A rash is sometimes present and may either precede the meningeal symptoms or appear concurrently in the meningococcal variety.

Recent military studies suggest that prophylactic treatment of contacts of meningococcal meningitis is unsatisfactory and replaces the emphasis of control of epidemics on avoidance of overcrowding and improved ventilation of living and sleeping quarters. More than half of the military personnel may be healthy carriers in an epidemic, and studies have shown that the public may have a carrier prevalence of 25 per cent or more without cases. This low ratio of cases to carriers shows that susceptibility to clinical meningococcal meningitis is slight.

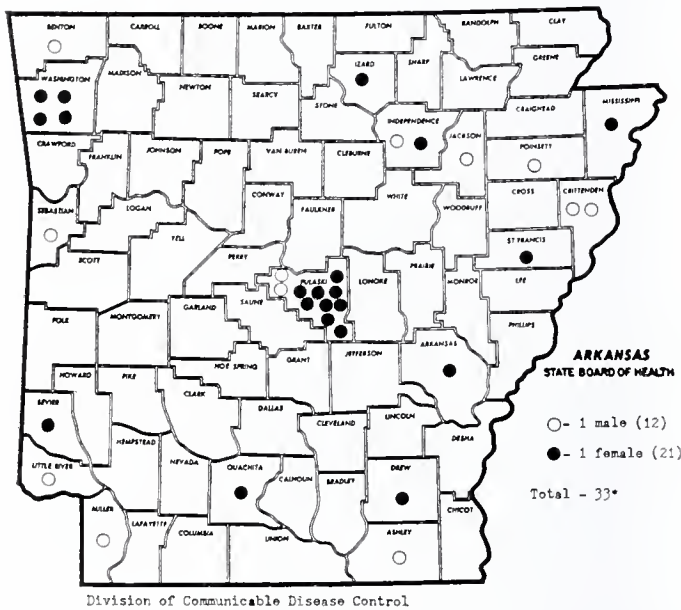
The cyclic occurrence of the disease suggests that immunity occurs but the degree and duration

has not been established. There are presently no generally accepted methods of inducing artificial immunity; thus, again emphasizing the need for health education regarding personal hygiene including avoidance of direct contact or droplet infection and the prevention of overcrowding. The continued relatively low level of occurrence for the past decade reflects the combined efforts of the private physicians and public health agencies to assist the public in practicing good preventive medicine in spite of the endemic nature of meningococcal meningitis which has man himself as the only reservoir of the infection.

The wide geographic distribution of all types of meningitis is expected since recognition usually depends on the concern of the parent for a child of a degree sufficient to avoid delay in seeking medical care.

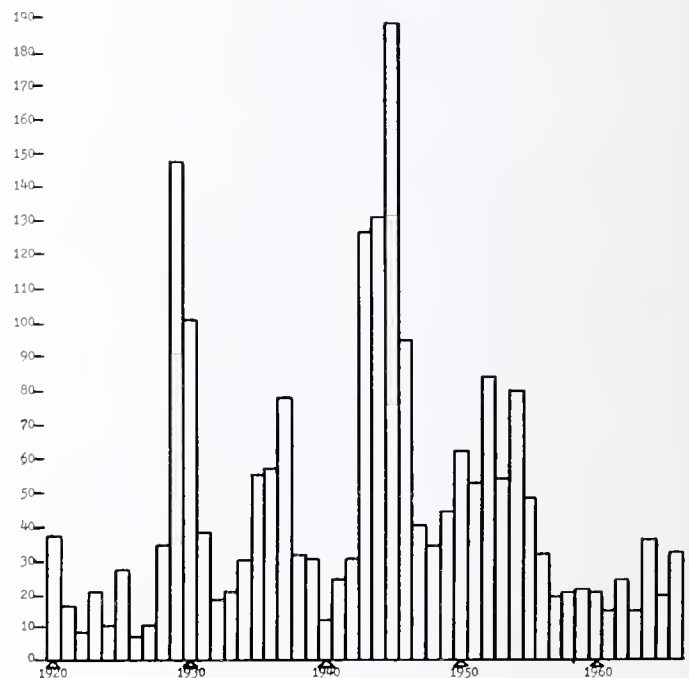
MENINGOCOCCAL INFECTIONS

1966*



*First 30 weeks of 1966 only.

ARKANSAS MENINGOCOCCAL INFECTIONS 1920—1966*



*First 30 weeks of 1966 only.





EDITORIAL

Richard Vincent Ebert

Dr. John A. Pierce*

In its entire history the University of Arkansas School of Medicine has not been credited with so many distinguished honors as those bestowed upon Richard Ebert during his twelve years as Professor and Chairman of the Department of Medicine. He came to Arkansas as a disciple of excellence in medical teaching and has established an enviable tradition of excellence in medical care at the University Hospital. His methods of teaching are simple: to always consider first the best interest of the patient, to meet each problem squarely and honestly on each encounter, to evaluate everything critically, and to encourage and excite those about him with an insatiable appetite for the truth. He has exemplified the best that is possible in the healing art.

During his twelve years at Little Rock almost one thousand medical students received their degrees in medicine. More than four hundred of these students were privileged to have his personal instruction concerning patients they had interviewed and examined. They accompanied Dr. Ebert as he in turn repeated the interview and examination and reached his own conclusions to conduct the discussion of the patient. Dr. Ebert consistently assigned himself to the ward rounding schedule so that no junior medicine section met during these years that he was not in active ward attendance at the University or Veterans Hospital. With the same energetic approach he visited in the Outpatient Clinic during the entire school year each of these twelve years. He leaves, as he came, an advocate of excellence in medical teaching, to assume responsibility for a larger program at the University of Minnesota.

Stories about Dr. Ebert's uncanny clinical acumen are numerous but only one will be related. One morning on ward rounds a weary intern described at length a harrowing series of events that

had ensued when a middle aged man known to have blastomycosis was admitted during the night with chest pain and cardiac arrhythmia. With therapy the cardiac rhythm reverted to a normal sinus mechanism but he developed shock. A wide assortment of medications including vasopressor agents and corticosteroids had been administered. The house staff had done an exceptional job in diagnosing myocardial infarction accurately and in treating the arrhythmia, but shock remained unexplained. Dr. Ebert's expression remained puzzled until he discovered deeply pigmented spots in the patient's buccal mucosa. After having the intern recount the sequence of events again, he correctly proposed that in addition to myocardial infarction, the patient had adrenal insufficiency secondary to blastomycosis of the adrenal glands! Subsequently a presentation of the case, the third reported instance of Addison's Disease in Blastomycosis appeared in the New England Journal of Medicine. Many other examples of Dr. Ebert's clinical talent could be cited, but the point is that his genius is to ignore the irrelevant, to ask the crucial question, make the critical observation, and reconstruct the sequence of the illness in a manner so logical that it seems that the diagnosis should have been apparent from the beginning.

His own modesty prevented Dr. Ebert from discussing his activities, and since there is no record of his outside responsibilities during the period 1954-1966 it seems appropriate to mention some of the things he did while at the University Medical Center.

He was a Councillor of the Central Society for Clinical Research, and a member of the Committee on Shock of the National Heart Institute. He served as Vice-President and as President of the American Society for Clinical Investigation, one

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of the elite scientific societies in American Medicine. He received the Distinguished Alumnus Award from the University of Chicago. He served as visiting professor at the University of North Carolina, Baylor University, and Washington University in St. Louis. He was Vice-President and then President of the Central Society for Clinical Research. He was a member of the National Board of Medical Examiners and of the Association of American Physicians, and a consultant on respiratory diseases to the American Thoracic Society, and to the Surgeon General's Committee on Smoking and Health. He had a major role in establishing the Veterans Administration study on myocardial infarction and anticoagulant therapy. He has been Chairman of the Training Grants Committee of the National Heart Institute and was recently appointed to the National Heart Council, a group that helps to determine policy for all the Heart Institute activities. He is Chairman of the Scientific Exhibits Committee of the American Medical Association. He has been on

the Editorial Board of the Journal of Clinical Investigation, the Journal of Laboratory and Clinical Medicine, and currently is a member of the Board of Editors of the Archives of Internal Medicine. He is a member of the American Board of Internal Medicine, the official group concerned with certification in Internal Medicine. Despite these extracurricular activities which would amount to a full time job for lesser men, Dr. Ebert has continued to contribute significantly to medical knowledge. His bibliography includes over seventy-five original publications. Thirty-seven of these papers were published between 1955 and 1966.

In those of us who have been associated with him and have learned from him, the spirit of Dick Ebert will never die. His time here has been an endowment beyond all price. Our heritage at the University of Arkansas Medical Center is richer and our devotion to the art and science of medicine is deeper for his example. God speed you, Richard Vincent Ebert, on your important journey!

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Polyostotic fibrous dysplasia (Albright's syndrome).

X-RAY FINDINGS: Marked thickening and sclerosis of the maxilla, lower portion of the frontal bones and the sphenoid bones. When the skull is involved without involvement of the other bones the condition is called leontiasis ossea.

ANSWER—Electrocardiogram of the Month

RATE: 160 **RHYTHM:** Sinus Tachycardia

PR: .11 **QRS:** .07 **QT:** .24

SIGNIFICANT ABNORMALITIES: RSR' with delayed intrinsicoid deflection in V₁. Abnormal T changes.

INTERPRETATION: Abnormal. Sinus tachycardia. Changes consistent with acute cor pulmonale.

COMMENT: Pulmonary embolism may produce various forms of electrocardiographic changes according to the amount of right ventricular overload. This tracing is an excellent example of one type change.



THE MONTH IN WASHINGTON

Washington, D.C. — The Advisory Committee on Obstetrics and Gynecology to the Food and Drug Administration reported that in a nine-month study it could find “no adequate scientific data” that birth control pills are “unsafe for human use.”

But the committee said that there are “possible theoretic risks” in the use of oral contraceptives. For this reason, the committee recommended further, extensive tests to learn more about possible side-effects and to improve surveillance of the

drugs.

The FDA accepted this proposal and other committee recommendations, including discontinuance of time limitations on use of oral contraceptives.

FDA Commissioner Dr. James Goddard said the agency would like to start studies on up to 50,000 women next year and eventually on as many as 500,000 women. The biggest drug studies thus far have involved only 20,000 or 30,000 women.

“The committee finds no adequate scientific



Dr. D. W. Goldstein (left) Ft. Smith, Ark.; Dr. Sara Janson, Chicago; and Dr. J. H. McCurry, Cash, Arkansas at the 50 Year Club of American Medicine luncheon, Palmer House, Chicago, Wednesday, June 27, 1966.

Dr. Janson is 94 years of age and still in active practice in Chicago. She was elected Vice President of the 50 Year Club in American Medicine.

Dr. J. H. McCurry, Cash, Arkansas is the founder of the 50 Year Club of American Medicine and was re-elected Secretary-Treasurer. He is 94 years of age.

Dr. D. W. Goldstein, Ft. Smith, Ark., is the retiring President and was elected Assistant Secretary.

data, at this time, proving these compounds unsafe for human use. It has nevertheless taken full cognizance of certain very infrequent but serious side-effects and of possible theoretic risks suggested by animal experimental data and by some of the metabolic changes in human beings," the committee concluded.

"In the final analysis, each physician must evaluate the advantages and the risks of this method of contraception in comparison with other available methods or with no contraception at all. He can do this wisely only when there is presented to him dispassionate scientific knowledge of the available data."

The FDA said it would lift shortly its recommended limits on use of the pill. The agency has required that manufacturers state on their labels and advise physicians that the oral contraceptives should be used by individuals for no more than four years because of concern about the unknown long-term effect of the medications. FDA officials and the advisory committee agreed that there isn't any sound scientific rationale for the restriction, because of the current lack of data that would indicate that the pills are dangerous.

Other steps that FDA officials said would be taken as a result of the report include imposition of uniform labeling requirements on all types of oral contraceptives, elimination of product-by-product variations that have confused physicians and allowed companies to make different promotional claims, and restrictions of the use of the products for some medical purposes, such as prevention of abortion and treating lack of menstruation or painful menstruation, as well as conception control.

"The oral contraceptives present society with problems unique in the history of human therapeutics," the committee said. "Never will so many people have taken such potent drugs voluntarily over such a protracted period for an objective other than for the control of disease. These compounds, furthermore, furnish almost completely effective contraception, for the first time available to the medically indigent, as well as the socially privileged. These factors render the usual standards for safety and surveillance inadequate. Their necessary revision must be carefully planned and tested, lest the health and social benefits derived from these contraceptives be seriously reduced. Probably no substance, even common table salt, and certainly no effective drug can be taken

over a long period of time without some risk, albeit minimal. There will always be a sensitive individual who may react adversely to any drug, and the oral contraceptives cannot be made free of such adverse potentials, which must be recognized and kept under continual surveillance. The potential dangers must also be carefully balanced against the health and social benefits that effective contraceptives provide for the individual woman and society.

"The oral contraceptives currently in use are probably not those that will be employed 10 or even five years hence. Drugs with even less potentially adverse effect, utilizable in smaller dosage, will undoubtedly be developed through continuing research."

The American Medical Association opposed legislation that would make prescribing drugs by generic name mandatory under the federal program of medical care for dependents of military personnel.

The AMA expressed its opposition in a letter to a joint House-Senate committee that was considering such legislation. The letter said:

"The generic name refers to the active chemical ingredient of the drug and not to the finished product which is supplied to the patient. In order that it may be dispensed, the trade name manufacturer, by way of a specific formulation, processes the drug to its final form. For example, included in a manufacturer's preparation of a tablet form of a drug may be a number of variables such as the crystalline size, the nature of the excipients, the coloring agents and flavors, the tableting pressures, coating films, and the orientation within the tablet.

"Since the finished product, depending on who has manufactured it, may emerge in any one of several forms, it becomes apparent that a generic-named drug supplied by one manufacturer may differ to a significant degree from the same generic-named drug supplied by another manufacturer. Yet, if the physician is compelled to prescribe by generic name, he would have no control as to which drug is used by the pharmacist in filling the prescription.

"The coating, the disintegration time, the solubility, the choice of vehicle or base, these and other factors may be extremely important to the physician who chooses a drug for his patient. He must have the opportunity to specify that drug containing the variables he has found suitable to

the treatment of his patient. Further, where his patient is receiving the same medication over a period of time, successive refills of the same prescription with products of different manufacturers, could lead to variations in therapeutic response which may mislead him.

"It has been suggested that generic prescribing would result in substantial savings. This may be true in some instances, but certainly not in all. Generic prescribing would allow the pharmacist to furnish the patient with that manufactured drug he, the pharmacist, has chosen. It may or may not be less expensive. In any event, it is the pharmacist who sets the final price.

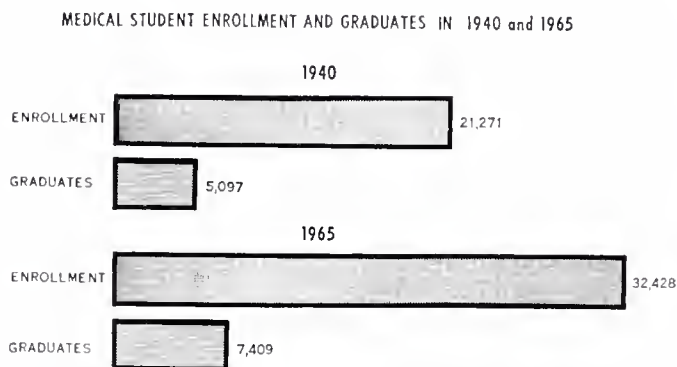
"The argument of generic prescribing versus trade name prescribing has been heard at scientific gatherings, seen in scientific publications, and debated in the committees of Congress. But as to one element of the discussion, almost all physicians agree. For a variety of sound medical reasons, the choice of whether to prescribe generically or by brand name should be that of the treating physician. No law should be passed which may compel him to use in every case, a generic or non-proprietary drug. Such a law would not be in the best interest of his patient."

PHYSICIAN MANPOWER: INCREASE IN MEDICAL GRADUATES

The past 25 years have seen considerable increases in the number of U.S. medical schools, the enrollment of medical students, and the number of medical graduates. In 1940 there were a total of 77 medical schools in the U.S. including 10 schools offering two-year programs in the basic medical sciences. In 1965 there were 88 U.S. schools of medicine including 3 schools offering two-year programs in the basic medical sciences. In 1965 medical school enrollment reached 32,428, a 53 per cent increase over the 21,271 medical students enrolled in 1940. The annual number of medical graduates totaled 7,409 in 1965, an increase of 45 per cent over the 5,097 graduates in 1940. Expansion of the 77 schools existing in 1940, including the transition of 7 of the basic medical science schools to the full four-year medical curriculum, provided a major increase in medical school enrollments of 7,810 or 35 per cent, and an increase in annual medical graduates of 2,312 or 30 per cent. The 11 new medical schools that developed in the years 1940-1965 accounted for an increase in student enroll-

ment of 3,317, or 18 per cent, and an increase in annual graduates of 757, or 15 per cent. It is estimated that medical school enrollment in 1966 will total 32,873, an increase of 445 over the total enrollment of 1965.

Figure 1 depicts the increases in medical student enrollment and annual graduates resulting from the expansion and addition of U.S. schools of medicine in the years 1940 through 1965.



At the present time, the creation of 15 new medical schools seems certain since responsible institutions have publicly announced decisions for their establishment and taken such steps as determining sites and appointing deans or equivalent administrative officers. Twelve of the new schools now being planned will provide the full four-year medical curriculum and 3 plan to use a form of curriculum that will not include the clinical years of education. At least 25 additional groups or institutions have initiated explorations or discussions in contemplation of the creation of new medical schools, the futures of which are still largely speculative. A listing of the names and locations of the medical schools now in development follows:

- University of Arizona College of Medicine; Tucson, Arizona
- Brown University Division of Biological and Medical Sciences; Providence, Rhode Island
- University of California, Davis School of Medicine; Davis, California
- University of California, San Diego School of Medicine; La Jolla, California
- University of Connecticut School of Medicine; Farmington, Connecticut
- University of Hawaii School of Medicine; Honolulu, Hawaii
- Louisiana State University School of Medicine; Shreveport, Louisiana
- University of Massachusetts School of Medicine; Worcester, Massachusetts

Michigan State University College of Human Medicine; East Lansing, Michigan
Mount Sinai School of Medicine; New York, New York

State University of New York School of Medicine; Stony Brook, New York

Pennsylvania State University, The Milton S. Hershey Medical Center; Hershey, Pennsylvania

Rutgers—The State University, Rutgers Medical School; New Brunswick, New Jersey

University of Texas, South Texas Medical School; San Antonio, Texas

Toledo State College of Medicine; Toledo, Ohio

Recently awarded basic improvement grants to 85 existing schools and 7 new schools are based on planned expansion that will result in 1967 in the creation of 992 additional places for medical students. While additional enrollment expansion is anticipated through Educational Facilities funding, insufficient data are presently available to assess the potential magnitude of increase.

The availability of sufficient qualified applicants to fill the positions to be created by proposed enrollment expansion will be examined in next month's issue of Datagrams detailing the application activity and Medical College Admission Test data of applicants to the class of 1965-66.

RESOLUTIONS



Whereas, God in his infinite mercy has seen fit to call from our midst Dr. Miles E. Foster, and

Whereas, Dr. Foster had faithfully served his patients in the community at large throughout his many years of medical practice, and

Whereas, Dr. Foster, during his years of practice reflected throughout his entire medical career the highest ideals of the profession, and

Whereas, The Sebastian County Medical Society mourns his loss,

Therefore, Be It Resolved by the Sebastian County Medical Society in regular meeting as-

sembled on September 13, 1966 hereby adopts these resolutions and directs that a copy be spread on the minutes of the Society and that a copy be furnished to the family and that a copy be published by the Journal of the Arkansas Medical Society.

THINGS



TO COME

The Arkansas Medical Society, in cooperation with the AMA, is co-sponsoring clinical lectures in four colleges and universities during the 1966-67 academic year. The lectures are designed to stimulate undergraduate students to consider careers in the health sciences, as well as to inform the audience of recent developments in the field of nutrition. The four lectures scheduled for Arkansas are as follows:

1. Arkansas Polytechnic College in Russellville
Thursday, November 17

No specific time has yet been determined

Speaker: Robert E. Olson, Ph.D., M.D., Professor and Chairman, Department of Biochemistry, Associate Professor of Medicine, St. Louis University School of Medicine

2. University of Arkansas in Fayetteville

No specific date or time has been determined although the date of Friday, November 18 has been submitted for the lecture.

Speaker: Robert E. Olson, Ph.D., M.D.

3. Ouachita Baptist University in Arkadelphia
Thursday, November 3

No specific time has yet been determined

Speaker: Dr. I. Frank Tullis, Director, Clinical Research Center, University of Tennessee

4. Arkansas State College in Jonesboro
Wednesday, November 30 at 7:30 p. m.

Speaker: Dr. I. Frank Tullis



PERSONAL AND NEWS ITEMS

Dr. Atkinson Injured

Dr. Robert H. Atkinson of Hot Springs was injured in September in an automobile accident in Hot Springs.

Dr. John Griffin Is Diplomate

Dr. John E. Griffin of DeQueen has been notified that he is now a diplomate of the American Board of Surgery. Dr. Griffin is associated with the DeQueen Clinic.

Flying Physicians Meet

The 12th annual meeting of the national Flying Physicians Association was held in Las Vegas in September. Dr. Ben N. Saltzman of Mountain Home heads the association's Arkansas chapter of 32 members.

Dr. Robinson Files

Dr. Guy U. Robinson of Dumas has filed as a candidate for the Dumas School Board.

Dr. Bowers to Paragould

Dr. William E. Bowers, Jr., formerly of the Veterans' Administration Hospital, Poplar Bluff, Missouri, has opened offices for the practice of surgery in Paragould. He is a graduate of the University of Oklahoma School of Medicine.

Medical Seminar Held

The Education-Recreational postgraduate seminar of the Arkansas Academy of General Practice was held in Hot Springs in August. Speakers who appeared on the program, together with their subjects, included: Dr. John H. Adametz, Little Rock, "Types of Neck Injuries" and "Treatment of Neck Injuries"; Dr. Horace Murphy, Little Rock, "The Orthopedic Approach to Whiplash Injuries"; Fred Farmere, Libbey Memorial Center, Hot Springs, "Physical Therapy Approach to Whiplash Injuries". Dr. William R. Mashburn of Hot Springs is chairman of the arrangements committee.

Dr. Guenther in Rome

Dr. John F. Guenther, Mountain Home physician, attended the International Congress of Ab-

dominal Surgery at Rome, Italy, in September. Dr. Guenther is a member of the Arkansas State Medical Board of Examiners.

Dr. Riegler Awarded

The highest award of the Veterans Administration has been presented to Dr. Henry C. Riegler, a surgeon at the North Little Rock Veterans Administration Hospital, for an heroic act that saved two lives. Dr. Riegler's presence of mind and quick action saved a father who was a patient at Fort Roots, and his son, from drowning in a lake on the grounds of the hospital last May 15. Dr. Riegler was honored in ceremonies when he was presented the award by Dr. Lee Sewall, director of the Veterans Administration Hospitals in Little Rock and North Little Rock. On hand were Mrs. Riegler and Dr. Malcolm W. Davis, chief of staff at Fort Roots.

Dr. Burton Is Delegate

Dr. George Burton of El Dorado has been elected delegate to the Association of American Physicians and Surgeons which met in Los Angeles in October.



NEW MEMBERS

DR. HARRY WYNN HOLLINGSWORTH is a new member of Baxter County Medical Society. He is a native of Clearwater, Florida, and he received his preliminary education from the University of Tennessee at Knoxville, Tennessee. He was graduated from the University of Tennessee Medical College in 1935 and he interned at Methodist Hospital in Memphis, Tennessee. He has practiced at Devonia, Tennessee; St. Charles,

Virginia; Madison Heights, Virginia; Breckenridge and Borger, Texas; Tampa, Florida; Chattanooga, Tennessee, during the past thirty years. Dr. Hollingsworth's address is Leisure Hills, Lakeview, Arkansas. He is a general practitioner.

A new member of Washington County Medical Society is DR. RICHARD KENT LOVELL, Sr., a native of Paris, Arkansas. He attended the University of Arkansas and he was graduated from the University of Arkansas School of Medicine in 1963. He interned at Arkansas Baptist Medical Center in Little Rock. He completed a surgery and obstetrics-gynecology residency in 1966. He served in the U.S. Navy from 1948-1952. Dr. Lovell's office address is 1217 South Thompson in Springdale, Arkansas.

Washington County Medical Society announces that DR. JACK EDMISTEN is a new member. He is a native of Kansas City, Missouri, and he received his preliminary education from the University of Arkansas. He received his M.D. degree from the University of Arkansas Medical School in 1962; he interned at St. Joseph Hospital in Wichita, Kansas; and he completed a residency training program at the Veterans Administration Hospital in North Little Rock, Arkansas. He served in the U.S. Air Force from 1952-1956. Dr. Edmisten is a psychiatrist and his office is located at 102 West Dickson in Fayetteville, Arkansas.

DR. DONALD LANE TOON is a new member of Ashley County Medical Society. A native of Watson, Oklahoma, he received his preliminary education from the University of Arkansas. He was graduated from the University of Arkansas School of Medicine in 1965 and he interned at Arkansas Baptist Medical Center. He served in the U.S. Army from 1954-1956. Dr. Toon's office address is 310 Main Street in Crossett, Arkansas. He is a general practitioner.



Estimation of a Euglobulin by Ion Exchange Effects of Environment on Respiratory Function

W. S. Spicer et al (University of Maryland School of Medicine, Baltimore) *Arch Environ Health* 13:243-254 (Aug) 1966

One hundred male college students were divided at random into seven groups for evaluation of respiratory function, using the whole body

pressure plethysmograph. A variation in group mean respiratory function occurred, resembling a single cycle with poorest function in February to March. The subjects within groups underwent parallel changes in function. After correction of intergroup differences, these respiratory function changes correlated significantly with the temperature outside on the day of measurement and with the mean of the preceding week inside. Airway resistance increased as temperature decreased. Subjects with a history of asthma but presently asymptomatic had significantly abnormal respiratory function in comparison with their normal classmates and responded differently to temperature change.

The Ego-Ideal in the Treatment of Children and Adolescents

W. M. Easson (Box 829, Topeka, Kan) *Arch Gen Psychiat* 15:288-292 (Sept) 1966

With its special function of restitution, goal-direction, and gratification, there is merit in considering the ego-ideal as a specific part of the personality, dependent on ego individuation and on the capability for relationships. At times of transition and emotional change, for instance in early adolescence, the ego-ideal becomes especially prominent. To enter into and develop a meaningful treatment process, it may be essential for the nonpsychotic adolescent to personify the therapist as an ego-ideal. Various facets of this treatment relationship are considered. If such a transference does not occur, the treatment process may be irreversibly handicapped.

Visual Phenomena in Lesions of the Median Longitudinal Fasciculus

R. M. Gordon (Mount Sinai Hosp, New York) and M. B. Bender *Arch Neurol* 15:238-240 (Sept) 1966

A variety of visual illusions was observed in three patients with unilateral or bilateral lesions of the median longitudinal fasciculus. These illusions included binocular diplopia, monocular diplopia, spontaneous binocular oscillopsia, monocular oscillopsia occurring spontaneously and on ocular deviation, oscillopsia induced by head movement, and diplopia with oscillopsia of only one image while the other image remained stationary. These cases illustrate the complex interactions of the visual, oculomotor, and vestibular systems in visual perception.



Sponsored by Arkansas Tuberculosis Association

PULMONARY EMBOLISM IN HEALTHY PEOPLE

Deaths due to massive pulmonary embolism in ambulant people were found on a number of post-mortem records. Non-fatal cases were observed clinically. Early diagnosis is important so that anticoagulant therapy may be started at once. Radioactive scanning also shows promise.

Until a few years ago the occurrence of major pulmonary emboli in ambulant healthy people had received little general recognition, but in recent years there have been increasingly frequent reports of this condition.

However, many clinicians still fail to recognize the condition and make a diagnosis of pulmonary embolism only in the post-operative case, the case in gross heart failure, in the bedridden, or in the aged.

Several instances of clinical diagnosis of this condition have raised the question of whether there were not a number of patients who died either before diagnosis or before treatment could be effectively instituted. A study was therefore made on the basis of necropsy records of fatal cases and of cases diagnosed and treated in life.

Records of 27 fatal cases were studied. Of these, nine occurred outside the hospital and 18 following admission to the hospital. The age range was 23 to 69 years; six were men and 21 were women.

In all cases either a large embolus straddled the pulmonary artery bifurcation or both main pulmonary arteries were blocked by thrombus. In most cases an earlier thrombus was also present in peripheral branches with or without infarction.

Venous thrombosis was demonstrated at necropsy in all but one case—in deep veins of the leg in 16, uterine veins in 3, pelvic veins in 3, and superficial and deep veins in 4.

Two patients were five months pregnant, and one was eight days post partum and had previously been toxemic.

H. A. FLEMING, M.D., and SHEILA M. BAILEY, M.B. *British Medical Journal*, May 28, 1966.

In six cases there was evidence of venous thrombosis at the time of hospital admission. In two cases venous thrombosis became evident after admission. The initial hospital diagnosis varied widely—pulmonary embolism in 3, pneumonia in 6, coronary thrombosis in one, deep-vein thrombosis in 3, cerebral vascular accident in one, gastro-intestinal hemorrhage in one, pulmonary hypertensive heart failure in one, secondary carcinoma of lung in one, and in one it was uncertain.

The duration of symptoms varied from a few hours to five months. Two cases followed ligation of varicose veins—one at live days and one at two weeks.

CLINICAL DIAGNOSIS

In the part of the study relating to diagnosis in patients treated in life, 39 cases of major pulmonary embolism were reviewed. Diagnosis was made on the basis of history and physical signs, often with confirmation from the electrocardiogram or chest X-ray films.

Fifteen cases were related in time to pregnancy. Twenty-four (62 per cent) had a history or clinical evidence of venous thrombosis, though in five this did not become evident until after the embolus had been diagnosed. Two had severe varicose veins without evidence of thrombosis. Seventeen patients (43 per cent) were overweight.

SYMPTOMS VARIED

Symptoms, which began from a few hours to seven years before diagnosis, were: chest pain in 19, dyspnea in 15, faintness in 12, and fatigue in 5. All were treated with anticoagulants and made a good recovery.

The electrocardiogram was normal and remained so in 11 cases, but showed some abnormality in 28. Several studies indicate that possibly not more than 20 per cent of patients who subsequently have pulmonary embolism develop any electrocardiographic changes, and of these a still smaller number show identifiable diagnostic abnormalities.

Chest X-ray films were seldom diagnostic. Cli-

nicians and radiologists are still liable to expect opacities in the lung field rather than the paucity of vascular markings on the affected side, which is more usual when embolus without infarction has occurred. An appearance of plethora on the normal side may also be observed. Dilatation of the main pulmonary artery and of the right heart are again signs of advanced disease and are not helpful for early diagnosis.

Pulmonary angiography can be diagnostic and is essential before embolectomy is considered. However, it is not without risk in the gravely ill patient and, again, it is not likely to be used routinely to confirm the diagnosis in a healthy patient who has just had one clinically suspicious episode.

Respiratory function studies have a useful purpose in confirming a disturbance of ventilation perfusion ratios. However, the techniques are not easy and the procedure may be difficult in the ill patient. These techniques undoubtedly have their place, but their reliability is not yet established.

Serum enzymes may be suggestive. It has been reported that elevation of the serum lactic dehydrogenase activity, an increase in the serum bilirubin concentration, and a normal serum glutamic oxalacetic transaminase activity are diagnostically helpful. However, these results may be mimicked by other conditions.

RADIOSCANS HELPFUL

Scanning of the lung fields after the injection of macro-aggregated radioiodinated serum human albumin appears to be the most hopeful early diagnostic test. This radioactive material is held in the small pulmonary vessels and does not enter those blocked by embolus. It appears to be an accurate and simple method of locating areas of pulmonary arterial block. There would be no particular difficulty about carrying this out in the early case that may have a recurrence of symptoms while on anticoagulants, or in the seriously ill patient.

As for prognosis, in simple major pulmonary embolus there appear to be three possible courses. The most common is that the condition clears completely and there is no recurrence. However, the first embolus may be followed rapidly by others, leading to the classical advanced picture of massive pulmonary embolus, which is often fatal. The third possibility is that further emboli are so distributed in time and space that with or without

major episodes there is a gradual development of thromboembolic pulmonary hypertension. Early diagnosis and treatment are essential if this is to be avoided.

Diagnosis must be made at the earliest possible time and treatment with anticoagulants instituted. In the first instance full doses of heparin must be used. If anticoagulant therapy is pushed firmly, surgery to the veins or embolectomy will not commonly be necessary.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

(Act of October 23, 1962: Section 4369, Title 39, United States Code.) Publisher: File two copies of this form with your postmaster. 1. Date of filing, October 1, 1966. 2. Title of Publication, The Journal of the Arkansas Medical Society. 3. Frequency of issue, Monthly. 4. Location of known office of publication (Street, city, county, state, zip code), 114 E. Second Street, Little Rock, Arkansas 72203, Pulaski County. 5. Location of the headquarters or general business offices of the publishers (Not printers), 218 Kelley Building, Post Office Box 1208, Fort Smith, Arkansas 72901. 6. Names and addresses of publisher, editor, and managing editor, Publisher (Name and address), Arkansas Medical Society, 218 Kelley Building, P.O. Box 1208, Fort Smith, Ark. 72901; Editor (Name and address), Alfred Kahn, Jr., M.D., 1300 West Sixth Street, Little Rock, Arkansas; Managing Editor (Name and address), Mr. Paul C. Schaefer, 218 Kelley Building, P.O. Box 1208, Fort Smith, Arkansas 72901. 7. Owner (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.) Name, Arkansas Medical Society (non-profit organization, incorporated); address, 218 Kelley Building, P.O. Box 1208, Fort Smith, Ark. 8. Known Bondholders, Mortgagees, and other Security Holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities (If there are none, so state.) None. 9. Paragraphs 7 and 8 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner. Names and addresses of individuals who are stockholders of a corporation which itself is a stockholder or holder of bonds, mortgages or other securities of the publishing corporation have been included in paragraphs 7 and 8 when the interests of such individuals are equivalent to 1 percent or more of the total amount of the stock or securities of the publishing corporation. 10. This item must be completed for all publications except those which do not carry advertising other than the publisher's own and which are named in sections 132.231, 132.232 and 132.233, postal manual (Sections 4355a, 4355b, and 4356 of Title 39, United States Code). A. Total No. copies printed (net press run) Average No. copies each issue during preceding 12 months, 1,950; single issue nearest to filing date, 2,000. B. Paid circulation, 1. Sales through dealers and carriers, street vendors and counter sales; 2. Mail Subscriptions, Average No. copies each issue during preceding 12 months, 1,424; Single issue nearest to filing date, 1,446. C. Total paid circulation, Average No. copies each issue during preceding 12 months, 1,424; Single issue nearest to filing date, 1,446. D. Free distribution (including samples) by mail, carrier or other means, Average No. copies each issue during preceding 12 months, 473; Single issue nearest to filing date, 521. E. Total distribution (Sum of C and D), Average No. copies each issue during preceding 12 months, 1,897; Single issue nearest to filing date, 1,967. F. Office use, left-over, unaccounted, spoiled after printing, Average No. copies each issue during preceding 12 months, 53; Single issue nearest to filing date, 33. G. Total (Sum of E & F—should equal net press run shown in A), Average No. copies each issue during preceding 12 months, 1,950; Single issue nearest to filing date, 2,000. I certify that the statements made by me above are correct and complete. (Signature of editor, publisher, business manager, or owner)—Mr. Paul C. Schaefer, Business Manager

THE
JOURNAL
OF THE
Arkansas MEDICAL
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December, 1966

Vol. 63 No. 7

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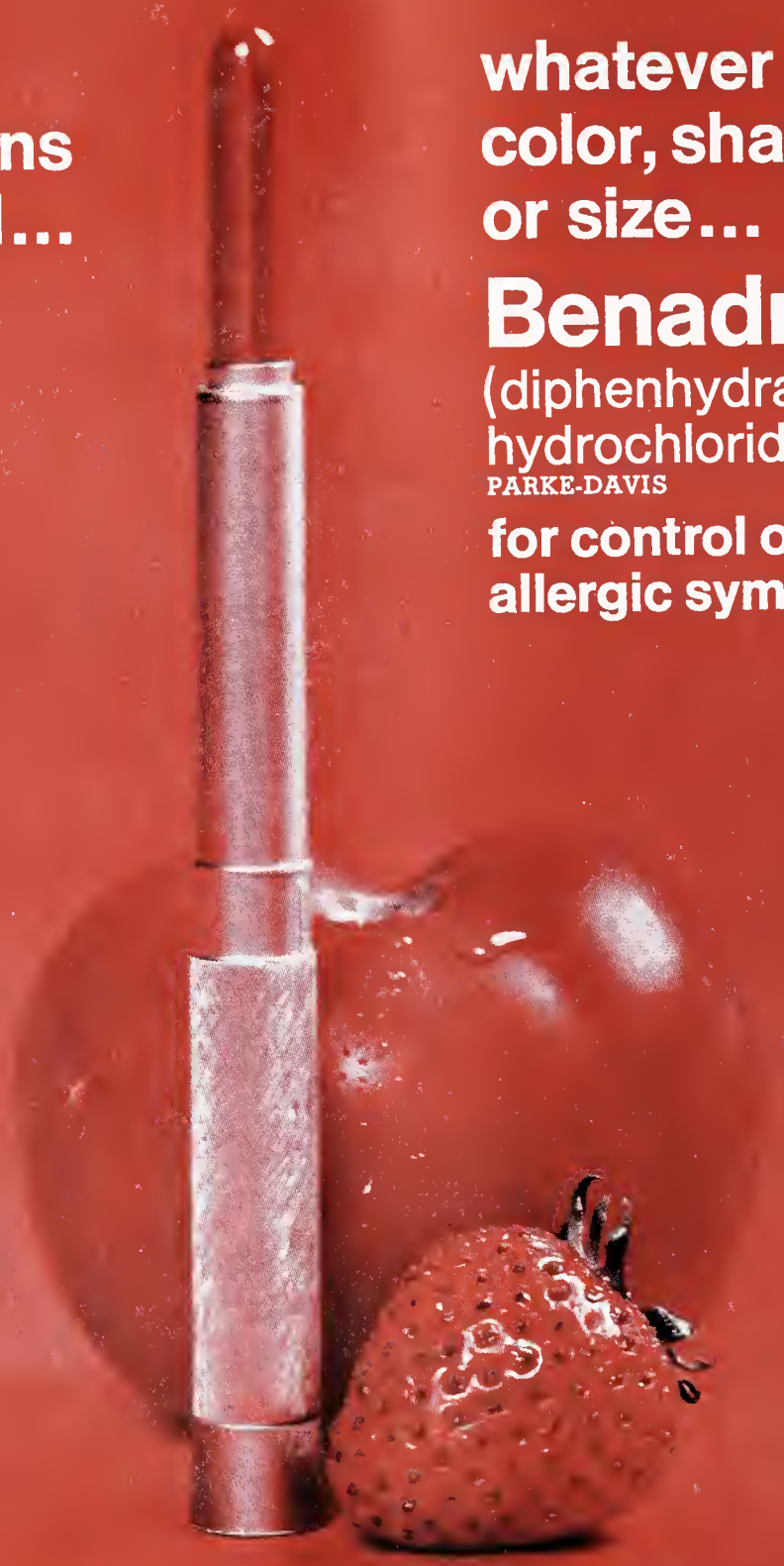
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Hyperplastic Lesions of Vulva: Hypertrophic Leukoplakia, Dysplasia, Intraepithelial Carcinoma

M. R. Abell, M.D., Ph.D.*

There is a group of vulvar lesions exclusive of the usual forms of dermatitis which is characterized grossly by thickened white skin and mucosa. These lesions are commonly called leukoplakia clinically but their true nature is not recognized until biopsies are done. They are important because they are thought to predispose to the development of infiltrative carcinoma. Actually, to some extent they comprise a spectrum of cellular changes that range from a completely benign and inactive appearing hyperplasia to one that has all of the bizarre atypicalities of carcinoma but without invasion of dermis or submucosa. Invasive carcinoma is thought to be the eventual outcome of many of these lesions if they are not treated and, thus, their recognition and proper handling may be of considerable importance in the life of the patient.

Hypertrophic Leukoplakia

This is a greyish-white, thickened, and fissured lesion of the skin and adjacent mucosa.^{1,2,3,4} Approximately 80% of the cases are found in patients who are passed the menopause but they may be encountered at any time after menarche. Early in the disease there may be no symptoms but later pruritis is an almost constant complaint and sometimes it precedes the appearance of definite gross lesions. Some cases of hypertrophic leukoplakia develop in the shiny white, atrophic, and edematous skin of lichen sclerosis et atrophicus, atrophic leukoplakia, and Kraurosis vulvae.^{4,5} These three lesions have similar, if not identical, histological features which are seen in association with nearly 70% of invasive squamous cell carcinomas, lending support to the concept that the

sequence of changes in some of these atrophic lesions is hyperplastic leukoplakia, dysplasia, intraepithelial carcinoma, and finally, invasive cancer.

Microscopically there is a thickening of the epidermis and mucosa due to hyperplasia of the stratum spinosum. The surface is covered by a thick layer of keratin which sometimes equals the cellular portion of epidermis in thickness. The stratum granulosum may be prominent and there may be patchy parakeratotic areas. There is usually some increased cellular activity near the basal layer with scattered normal division figures but the cellular atypia of dysplasia, or carcinoma in situ, is not present. Some degree of chronic inflammation of underlying connective tissues is usually present when the lesions have arisen in lichen sclerosis et atrophicus or atrophic leukoplakia; the underlying dermis shows homogenization of collagen and edema.

Hypertrophic leukoplakia must be classed as a precancerous lesion in that if not treated, a certain percentage (10-20%) of cases, proceed to intraepithelial and then invasive carcinoma.^{2,3,4}

Squamous Cell Dysplasia

Dysplasia may be defined as atypical hyperplasia or faulty tissue differentiation which possesses many of the cellular attributes of cancer. In many chronic inflammations of skin and mucosa there is some increased epithelial activity and even some atypicality of cells but the term dysplasia is not generally applied to these focal changes and the use of the term is usually restricted to more diffuse lesions in which the epithelial atypicalities are more prominent and overshadow any inflammatory reaction. The changes approach but do not quite reach the bizarre features of definite carcinoma. The lines

*Department of Pathology, The University of Michigan, Ann Arbor, Michigan.

of demarcation between dysplasia and intraepithelial carcinoma are not sharp and thus differences of opinion sometimes exist as to which lesion is present. A few workers do not accept dysplasia or even intraepithelial carcinoma as entities although they separate them from the obviously benign lesions by designations such as atypical leukoplakia or leukoplakia, Grade III or IV.

TABLE I
CARCINOMAS OF VULVA

Type	Mean age or range	No. of patients	Percent of total
Infiltrative squamous cell carcinoma		218	78
Cutaneous basal cell carcinoma		8	3
Intraepithelial carcinomas	48	52	19
Bowen's type	38 (14%)	41	
Simplex type	12 (4%)	66	
Paget's type	2 (1%) (62-63)		
TOTALS		278	100

In other locations in the body, dysplasia of the epithelial surfaces is produced by exogenous chemicals, certain infections, and abnormal levels of hormones. It is logical to assume that such factors may be important in the causation of some of the vulvar lesions, but proof is lacking.

The gross lesions in many instances do not differ from those of hypertrophic leukoplakia and actually many of the dysplasias develop in such lesions. Microscopically hyperchromatic squamous cells of varying size and staining reaction extend throughout much of the epidermis but are more prominent in its lower portion. In the skin, the rete pegs are elongated and widened due to the proliferative activity. Division figures are increased in numbers, particularly near the basal layer and are usually normal in appearance. There may be some individual cell keratinization near the surface which is covered by varying amounts of adherent keratin and parakeratotic material. The upper layers of the epidermis or mucosa usually retain some stratification of cells but the stratum granulosum may be either prominent or absent.

Dysplasia is often seen at the margins of intraepithelial carcinomas with or without associated invasive areas and at times a gradual transition from one to the other is observed. There is little doubt but what dysplasia progresses to intraepithelial carcinoma and then to invasive carcinoma but how often this occurs and how often the lesions remain stationary or regress have not been

determined.

Intraepithelial Carcinomas of Epidermis and Mucosa of Vulva

Intraepithelial (in situ) carcinoma is a well recognized entity in the uterine cervix and we believe that there is sufficient evidence to justify the acceptance of similar lesions in the vulvar epidermis and mucosa. We recognize three clinicopathological forms of intraepithelial carcinoma of vulva, namely Bowen's, simplex, and Paget's.^{7,8} The evidence indicates that these three intraepithelial carcinomas, after varying intervals, become infiltrative.

Bowen's intraepithelial carcinoma has been recognized in the vulva since 1922 and several series of cases have been analyzed.^{7,9,10,11} Extramammary Paget's disease, although rare, has commanded a good deal of attention because of its unusual appearance and the uncertainty of pathogenesis.^{12,13} For many years it was considered to be an intraepithelial spread of cancer cells from an adenocarcinoma that arose in underlying sweat glands. Detailed studies, however, revealed a number of cases in which there was no underlying carcinoma in sweat glands and forced the conclusion that at least some lesions arose within the epidermis and later spread into skin appendages and, eventually, dermis. These two forms of intraepithelial carcinoma are histologically distinctive and easily recognized. The third type which we have termed the simplex form is a much more subtle lesion, less easily recognized because of a lack of bizarre cellular features. However, it may be a more important lesion in that the interval before it becomes infiltrative is much shorter than that for Bowen's disease. This type of intraepithelial carcinoma arises in atrophic or hypertrophic leukoplakia and features of the latter lesions are usually present.

In a study of all lesions of vulva diagnosed as carcinoma and atypical hyperplasia during approximately a thirty year period at The University of Michigan Medical Center, there were 52 examples of intraepithelial carcinoma representing 19% of all carcinomas.⁸ Thirty-eight of the intraepithelial lesions were of Bowen's type, 12 of simplex type, and two of Paget's type (Table I). The patients' ages ranged from 23 to 81 years with a mean of 48 years, 16 years lower than the mean age of patients with invasive carcinomas.

Intraepithelial Carcinoma of Bowen's Type

Patients with Bowen's intraepithelial carcinoma

are considerably younger than those with invasive carcinoma of vulva. In our material the ages of 38 patients ranged from 23 to 65 years with a mean of 41 years.⁸ There is a greater tendency for the disease to appear in Negro women, in obese women, and in those who have or have had vulvar infections. Pruritis is the initial complaint in most instances, but some patients may complain simply of a thickened area on the vulva or the lesions may be detected when patients are being investigated for some other disease.

The gross lesions vary considerably in appearance but are generally thickened, grey and/or red with white plaques, and sometimes an accentuated peripheral pigmentation. A few lesions are verrucal or polypoid. In our material the lesions varied from 1.5 cm. in greatest diameter, to involvement of the entire vulva. The labia majora are the most common sites of involvement and the lesions are multiple in roughly one-third of the patients.

In most examples of Bowen's disease, there are sharp transitions histologically from normal to abnormal areas in the epidermis and mucosa that possess all of the bizarre atypicalities of carcinoma. These areas are thickened with broad and deep rete pegs, excessive proliferation of squamous cells, and considerable surface keratin and parakeratotic material. The changes in many instances are not restricted to the surface proper but occur in, or extend into, the pilosebaceous structures. Such involved areas may appear to lie beneath and separate from the surfaces in certain planes of sections and should not be misinterpreted as areas of infiltrative carcinoma.

The involved epidermis or mucosa shows loss of normal stratification and differentiation toward the surface. The abnormal cells possess large irregular hyperchromatic nuclei and there are numerous division figures, many of which are of abnormal configuration. Individual cell keratinization, corps ronds, micropearls, and large mono- and multinucleated tumor giant cells are prominent features. The histological changes in Bowen's disease are distinctive and there are none of the changes of atrophic leukoplakia or lichen sclerosis et atrophicus. When invasion of the dermis occurs, the carcinomas often retain, for some time, many of the cytological features of the *in situ* phase.

Twelve of the 38 patients with intraepithelial Bowen's disease that we studied developed one to four recurrences or new lesions after the initial

excisions, but only one patient died of recurrent and metastatic carcinoma, which was 18 years after diagnosis. One additional patient is alive and well 19 years after initial treatment and 14 years after radical vulvectomy and lymph node dissection for recurrent and invasive cancer. Fourteen patients were treated by radical vulvectomy and lymph node dissections, and 24 by partial or complete vulvectomy, without lymph node dissections. The recommended initial treatment is partial or complete vulvectomy without lymph node dissection and meticulous examination of the specimens to determine adequacy of excision and the question of infiltrative growth. If definite invasion is found or if it subsequently develops, radical procedures with bilateral lymph node excisions should be done. There is no place for the use of irradiation therapy in the initial treatment of intraepithelial carcinomas.

Of considerable interest clinically is the increased frequency of other primary cancers in patients with Bowen's intraepithelial carcinoma. This has been noted by Graham and Helwig^{14, 15} in respect to Bowen's disease of skin in general and others have found it to be true in regard to the vulvar lesions.^{7, 8, 11, 16} In our material, second primary malignant neoplasms of tissues other than vulva existed or have occurred in 13 patients. In eight instances, the second cancers were infiltrative squamous cell carcinomas of the uterine cervix, and in two patients the second lesions were within the upper vagina. Other second cancers were in the breast in two women and malignant lymphoma developed in another. Two additional patients were found to show severe dysplasia of the uterine cervix, approaching carcinoma *in situ* at the time the vulvar lesions were discovered.

Intraepithelial Carcinoma of Simplex Type

This form of intraepithelial carcinoma occurs considerably later in life than the Bowen's type and is considerably less common. The mean age of 12 patients with this disease was 66 years and only one patient was pre-menopausal.⁸ The complaints are pruritis and/or soreness. The gross vulvar lesions are those of leukoplakia with thickened white plaques sometimes superimposed on atrophic lesions. Incision biopsies or excisions of the lesions were done in our case because of the severity of the symptoms or because of some change in their character.

The lesions appear as multifocal areas of thickened epidermis and mucosa, often with broad

and deep rete pegs and with considerable hyper- and parakeratosis. In these areas the squamous cells are atypical with hyperchromatic enlarged nuclei and frequent division figures. The atypicalities, although definite, are not near as prominent as those of Bowen's disease. The changes of atrophic leukoplakia (kraurosis vulvae or lichen sclerosis et atrophicus) are present in most lesions.

Intraepithelial carcinoma of the simplex type is commonly seen at the margins of infiltrative epidermoid carcinomas of vulva and sometimes at other sites in the specimens resected for such carcinomas. Although we believe that this type of intraepithelial carcinoma is a definite histological entity, others, particularly those that require infiltration as a necessary requisite for malignancy, are reluctant to classify it as cancer, even though they recognize that it may precede invasive carcinoma. Some workers would designate this lesion as atypical leukoplakia or severe dysplasia.

Five of 12 patients studied by us were treated by radical vulvectomy and bilateral lymph node dissections after biopsies were interpreted as early carcinoma; seven were treated solely by vulvectomy. There were no recurrences or metastases in these patients followed for three to 12 years. There is not the association of other primary carcinomas with this form of intraepithelial carcinoma that we see in Bowen's disease.

Intraepithelial Carcinoma of Paget's Type

This is an exceedingly uncommon lesion which occurs in much older women than does Bowen's disease. The complaints are similar and the gross features are not sufficiently characteristic that the lesion can be diagnosed without biopsy. The two cases in our series were diagnosed clinically as leukoplakia and moniliasis.

In the initial phases of the disease the changes are confined to the epidermis and its appendages without dermal invasion. Clusters of the abnormal cells are distributed throughout the lower dermis close to the basement membrane. The squamous cells between the nests are normal. The neoplastic cells, although considered to be of epidermal origin, produce mucin. Their cytoplasm is clear or faintly basophilic and the nuclei are large with scattered division figures. Sometimes the cells are arranged about small lumina that give the area a glandular appearance.

Only two patients with this form of intraepithelial carcinoma have been seen by us and both were treated by vulvectomy alone. One is

alive and free of disease eight years later and the second died of carcinoma of the biliary system six months after diagnosis of the vulvar lesion.

Summary

There is a group of hyperplastic vulvar lesions characterized grossly by thickened, reddened, and hyperkeratotic greyish skin and mucosa that are usually designated clinically as leukoplakia. Histologically, however, there is considerable difference in the structure and clinical significance of these lesions and several fairly distinct entities can be recognized.

Hypertrophic leukoplakia is a raised keratotic lesion in which there is some cellular activity but no significant degree of atypical proliferation. The lesions predispose to the development of carcinoma but such occurs in only about 10 to 20% of cases that are kept under observation. When there is considerably atypicality, insufficient, however, for a diagnosis of carcinoma, the lesions are called dysplasia or atypical hyperplasia. These possess a greater tendency to go on to intraepithelial carcinoma than the simple hypertrophic leukoplakias do and are often seen in association with areas of definite intraepithelial carcinoma and invasive carcinoma.

The most important lesions in this group of vulvar hyperplasia are the intraepithelial carcinomas. They comprise 15 to 20% of all primary carcinomas of the vulva. Three clinicopathological entities are encountered, namely Bowen's, simplex, and Paget's forms of intraepithelial carcinomas. Bowen's disease is the most common of these and is encountered primarily during the later part of the reproductive period, in patients 20 years younger than those with the orthodox form of invasive squamous cell carcinoma. Vulvar infections and obesity predispose to its development. It does not have any relationship with hypertrophic leukoplakia, atrophic leukoplakia, lichen sclerosis et atrophicus or kraurosis vulvae. Of particular interest is the association of Bowen's disease with second primary neoplasms in other sites in about one-third of the patients. Most of these are located in the uterine cervix. Although Bowen's disease tends to recur in the vulvar and perineal area after adequate excisions, the prognosis is good with only an occasional case getting out of hand and metastasizing.

Intraepithelial carcinomas of simplex and Paget's types occur almost exclusively in patients over 60 years of age. The simplex form develops

in hypertrophic or atrophic leukoplakia and in these patients there is no increased tendency for primary carcinomas to appear in other sites. There is, however, evidence that there may be some propensity for the development of multiple primary cancers in patients with Paget's disease of vulva.

The treatment of squamous cell dysplasia and intraepithelial carcinoma of vulva is local excision, partial vulvectomy or complete vulvectomy, depending on the extent of the disease. The specimens must be examined meticulously for areas of infiltrative carcinoma. If such are found, more extensive procedures, including bilateral lymph node dissections may be required. If the intraepithelial carcinoma is of Bowen's type, careful examinations, particularly of the uterine cervix, should be done to ascertain if other primary cancers are present.

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Carbonic Anhydrase Deficiency With Persistence of Fetal Hemoglobin: New Syndrome

L. L. Eng (University of California Medical Center, San Francisco) and R. Tarail *Nature* 211:47-49 (July 2) 1966

The case of a 47-year-old man whose pattern of synthesis of hemoglobin and erythrocytic carbonic anhydrase resembled that of a newborn infant—i.e., a pronounced increase of Hb F, an extremely low level of Hb A₂, and a substantial carbonic anhydrase deficiency—is reported. Analysis of the hemolysate by starch-gel electrophoresis revealed the presence of a large, slow-moving hemoglobin, with the mobility of Hb F, and a smaller Hb A component. The patient was not

anemic but had red cell anisocytosis and poikilocytosis, target cells, circulating normoblasts, and abnormal and immature white blood cells in the bone marrow. He had hepatosplenomegaly and suffered from weakness, tendency toward muscle cramps, evanescent dermal lesions, night sweats, and episodes of partial loss of vision. The patient was not homozygous for β -thalassemia or hereditary persistence of Hb F. The increase of Hb F was too high for the heterozygous state. The patient had a pronounced deficiency of carbonic anhydrase, which was possibly the primary defect calling for compensatory adjustments in the hemoglobin synthesis. An increase of Hb F was not found in the patient's relatives.

DRUG ABUSE LAW

In letters to the Arkansas Medical Society headquarters regarding the new drug abuse law which went into effect on February 1, 1966, the president of the Pharmaceutical Manufacturers Association had these explanations of the law:

"On February 1, 1966, PL 89-74 goes into effect. As has been widely publicized, its purpose is to curb drug abuse through the curtailment of illicit drug traffic. To accomplish this, the law establishes special controls over the manufacture and distribution of depressant and stimulant drugs. Among these controls is the keeping of records of the manufacture, sale, delivery, and receipt of such drugs, and it is to this matter of record-keeping, insofar as it refers to physicians, that I would like to invite your attention.

Recently, there has been some confusion as to what records a physician must keep under PL 89-74. Putting it simply, *they are not required to keep records as a consequence of this law unless, in the course of their practice, they dispense the drugs referred to and charge for them.* The law is quite clear on this, and I quote from that part of the Act relating to record-keeping:

"The provisions of paragraphs (1, Records) and (2, Inspection) of this subsection shall not apply to a licensed practitioner . . . with respect to any depressant or stimulant drug received, prepared, processed, administered, or dispensed by him in the course of his professional practice, unless such practitioner regularly engaged in dispensing any such drug or drugs to his patients for which they are charged, either separately or together with charges for other professional services."

The key phrases in this paragraph are the words 'regularly engaged' and 'for which they are charged'.

Further in this regard is a quote from the House Report of the Committee on Interstate and Foreign Commerce on H.R. 2 which became PL 89-74:

"The committee intends . . . to require record-keeping and to permit inspection in the case of those physicians who maintain a supply of pharmaceuticals or medicinals in their offices from which they compound prescriptions for their patients for a fee."

The language of the Senate Committee Report is identical. Both committee reports stated that those required to keep records 'involve only a very small percentage of physicians.'

The proposed regulations underscore this point, indicating that ' . . . maintaining of small supplies of these drugs for dispensing or administering in the course of professional practice in emergency or special situations will not be considered as regularly engaged in dispensing for a fee.'

For those physicians who, in the course of their practice, *regularly dispense drugs and charge for them*, certain records are required to be kept for three years, effective February 1, 1966. Included are: a complete, accurate record of all depressant and stimulant drugs on hand February 1, 1966; a complete, accurate record of the kind and quantity of each drug received, sold, delivered or otherwise disposed of; the name, address (and registration number under Section 510 (e) of FDCA) of the person from whom the drugs were received, and to whom they were sold, delivered, dispensed or otherwise disposed of; and the date of the transaction. No separate form for these records will be required as long as the information specified is available.

Summing up, under PL 89-74 physicians do not have to keep records *unless* they regularly dispense the drugs covered by the Act and charge for them."

February 28, 1966

"As you remember, my letter of January 7 quoted the following provision of the proposed Food and Drug Administration regulations regarding physician record-keeping requirements; ' . . . (the) maintaining of small supplies of these drugs for dispensing or administering in the course of professional practice in emergency or special situations will not be considered as regularly engaged in dispensing for a fee.'

The regulations as finally promulgated on January 27 contained examples of fact situations in which the above provision would apply. Emergency or special situation dispensings include dispensings 'as a stopgap measure to tide patients over until a regular supply of drugs can be obtained by prescription from a pharmacy, or dispensings as trial doses to patients . . .' These are, of course, instances in which a physician will not be considered to be regularly dispensing. It should be noted in addition that under the wording of the statute even when a physician does regularly dispense, he need not maintain records unless he, in some way, charges for the drug."

The Value of the Chronic Disease Program to the Private Physician*

Maxwell G. Cheney, M.D.**

I should feel more qualified to speak to this group than I do for Mrs. Price * * * and I live in an area where there are probably more aged and chronically ill people than any other section of real estate in the State.

However, association with a situation does not necessarily beget knowledge, but it certainly begets awareness of the tremendous problems that confront the medical profession and its allies in dealing with the growing problem of the chronic patient.

I can only say that I appreciate the efforts of the Arkansas Public Health Association in combating the problems of this ever expanding situation. I hope they continue to expand their program to its richest fulfillment.

I might relate an incident in my office the other day when one of our retired ladies walked into my office for a general physical examination prior to returning to her former profession of school teaching. She explained that she did not want to be idle, and felt that she should keep herself occupied. I told her that I thought this was wise for I too often counseled with elderly couples who, after retiring, became unhappy when they were confronted with living with each other twenty-four hours a day. She said, "Yes, that that was certainly true; in fact she had a friend who openly declared that she married her husband for better or worse, but not for lunch."

Although the chronic disease program has been available to me since the day I went into private practice, and through the years I have learned to utilize the program more and more, it was not until I began to collect my material for this occasion that I began to realize the full scope and facility of this program. Nor had I stopped to realize how much more fully I could utilize this program to round out the care of my patients.

Although I can readily appreciate the value of the chronic disease program to all private practitioners, I can only evaluate it from a general practitioner's viewpoint.

With the diminishing ratio of general practitioners to general population (a situation that I hope is soon to be altered since the action of the American Academy of General Practice) it grows increasingly more difficult for the practitioner to give the kinds of care he would like to give.

There is a certain kinship between the public health nurse and her colleagues and the general practitioners; their scope of patient care is broad, the diseases with which they deal are numerous and varied, and their contact with the patient must necessarily be close, personal, understanding, and knowledgeable of the patient's circumstances. These factors combine to make this program, not only desirable but vital.

The problems of the chronic diseases and aging are increasing and will continue to increase as our population grows and the life span lengthens. Our expanding medical knowledge serves not to lessen these problems, but to make them more obvious. It is not my purpose to enumerate the problems involved in the chronic diseases and aging—rather to develop some concept of the solution of the problems as set aside by the program in question.

The value of the chronic disease program to the private practitioner has many facets, but generally it allows the practitioner more time for more pressing problems and gives him the assurance that the patient's well being is cared for in his absence. The program serves not only as a monitor of the patient's status from time to time, nor merely as an extension of the physician's therapeutic regime, nor as a liaison agent for better public relations, nor as a provider of medical personnel to lighten the practitioner's load, nor as a substitute "house-caller" to reassure the patient that he is cared for, nor as a provider of gratis benefits for those who cannot afford hospitalization or expensive specialized treatment—for all of these things it certainly does do; but the value is greater than this—it broadens the physicians' total care concept.

The above mentioned services certainly are of direct benefit to the physician, but in addition

*Presented to the Arkansas Public Health Association Annual Meeting, Little Rock, Arkansas, May 19, 1965.

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they provide invaluable aid in the care of the chronically ill, semi-invalid, or invalid outpatients. Further, it provides, and I quote from the Community Health Services and Facilities Act: "increased availability, scope, and quality of community out-of-hospital health services and facilities which will assist in meeting the health needs of the chronically ill and the aged."

The greatest value of this program to the practitioner, unaware of it as he may be, is an indirect one, and the key to this statement is the phrase I used a moment ago—total care concept. Realizing the benefits of this program to both patient and physician—I would like to be more specific and point out some very definite advantages to the public at large and the patients themselves. And most assuredly, any health service that is truly beneficial to the general public is beneficial to the physician. The benefits of this program to the general public are:

- (1) With growing health awareness, there are more patient calls to physicians than ever before—so if the physician is relieved of the necessity for out-of-hospital or out-of-the-office calls, he can better fulfill the demands on his time by the ambulatory patient.
- (2) With the increased numbers of hospitalized patients, this program frees hospital beds for the more acutely ill by developing a satisfactory home care program for the chronic or aged patients who would otherwise be hospitalized.
- (3) It is a tax saving to the taxpayer in that this program eliminates some of the expensive hospitalizations and inpatient treatments that would otherwise be necessary for many of those who need federal or state aid in order to obtain inpatient care.

The advantages to the individual patients and their families might be listed as follows:

- (1) The patient may spend more time with family and friends while receiving adequate medical care.
- (2) The patient and/or family achieves more self-reliance through instruction and demonstration, thereby developing skills that are useful in the whole family situation.
- (3) The patients' and families' morale is boosted through their own self-reliance and their comprehension of the problems involved makes them more appreciative of the tasks that confronts the physician and the Public Health nurse.
- (4) There is a link provided, through this program, between the patient and other available services and agencies of which he would otherwise be unaware.
- (5) The patient and family are relieved of a considerable economic burden that is of necessity a part of long term care.

Time will not permit me to make mention of all the advantages that this program can provide to the patient, the community, and especially the physician. But allow me to nutshell its meaning to the physician. It provides the physician an instrument with which he may extend his services, his time, his capabilities, his completeness of treatment, and most of all his *total care* of his patients and community. Do you begin to see the importance of the phrase that I have twice left dangling without explanation—TOTAL CARE CONCEPT? This is what the entire program means to the physician.—TCC

Time for the physician
Care for the Patients
Comprehension for all.



Effects of Cigarette Smoking on Serum Lipids, Blood Glucose, and Platelet Adhesiveness

L. E. Murchison and T. Fyfe (Western Infirmary, Glasgow, Scotland) *Lancet* 2:182-184 (July 23) 1966

Platelet adhesiveness, blood glucose, and plasma lipids were determined in 12 patients before and after smoking and sham smoking (unlit cigarette). Smoking elevated plasma nonesterified fatty acid levels and increased the proportion of unsaturated

fatty acids at the expense of saturated fatty acids; there was a significant rise in blood glucose and a transient rise in the total platelet count. Sham smoking also elevated plasma nonesterified fatty acids levels in five of the 12 tests. The variable effect of smoking on platelet adhesiveness seemed to be due to opposing actions of changes in nonesterified fatty acid and glucose levels. A rise in plasma nonesterified fatty acids was associated with increased platelet adhesiveness, whereas a rise in glucose inhibited platelet adhesiveness.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., *Professor, and Chairman*
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Carcinoma of the Cervix in the Puerperium

M. R. Avery, M.D.*

Introduction

Carcinoma of the cervix in the puerperium is a rare entity. A review of clinical material at the University of Arkansas Medical Center from 1945 to 1965 revealed only 31 cases of invasive carcinoma of the cervix diagnosed in the first twelve months following vaginal delivery.

Review of the Literature

There are very few articles reporting large series of patients with carcinoma of the cervix in the puerperium. Gustavsson and Kottmeier,³ from the Radiumhemmet in Sweden, probably have reported the largest series. They noted a 43 per cent survival rate in 157 patients whose invasive carcinoma of the cervix was diagnosed in the first twelve months postpartum.

Graham, Sotto and Paloucek² reported a five-year cure rate of 28 per cent in 65 cases treated postpartum.

According to Gustavsson and Kottmeier,³ Truleson collected a series of 35 cases treated by radiation and only 7 patients were living, symptom free, after five years.

Van Praagh, Harvey, and Vernon¹² reported their experience with 24 cases diagnosed within the first three months postpartum and 19 cases diagnosed four to twelve months following delivery. Thirty-five of their patients delivered vaginally with a 54 per cent survival in those diagnosed earlier and a 64 per cent survival in those diagnosed later.

The literature⁴⁻¹⁰ is scattered with brief monographs which mention small series of patients who delivered vaginally through invasive carcinoma

of the cervix but which give no details of the cases.

Material and Methods

A review was made of patients with invasive carcinoma of the cervix diagnosed within the first twelve months following vaginal delivery at the University of Arkansas Medical Center. The study included the years 1945 through 1965.

As a general rule, a Wertheim hysterectomy with node dissection was preferred for the young, healthy patient with a small Stage I lesion. Radiotherapy was carried out in all other cases but one. The conventional radiotherapy included intra- and contracervical irradiation using an Ernst applicator loaded with radium plus external radiation. A total of 5,000 R was administered to the lateral pelvic wall. Approximately 10,000 to 12,000 R was administered to the cervix. In principle, the therapy of these cases did not differ from the routine treatment of carcinoma of the cervix in the non-pregnant patient.

Twenty-three patients were treated with radiotherapy. Twenty had conventional internal and external irradiation. One patient had a complete internal dose but refused external irradiation. Another patient started external therapy and stopped after a few days. She returned nine months later and was given palliative cross-fire to 12,000 Roentgens. This patient had a Stage III carcinoma of the cervix with active disease present on return and died approximately one year after completion of therapy. One patient started palliative cross-fire but did not finish and has been lost to follow-up.

Eight patients were treated surgically. Seven of these 8 patients had Stage I lesions, the re-

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maintaining patient had an anterior exenteration for Stage IV carcinoma. Five patients had Wertheim hysterectomies with node dissection. Two patients had total abdominal hysterectomies.

Results

The study group included 13 Caucasians and 18 Negroes. Average age was 32 years with a range of 20-43 years. Table I shows the age distribution and parity of the 31 patients in this series. Average parity was 7.8.

TABLE I
AGE and PARITY

Age	No. of Patients	Average Parity
20-25 yrs.	6	3.8
26-30	6	7.2
31-35	8	8.3
36-40	7	7.1
41-45	4	10.3
TOTAL	31	7.8

SYMPTOMS: The initial symptoms in the study series were vaginal bleeding and/or vaginal discharge. Scanty vaginal bleeding or vaginal discharge normally occurs a few weeks after delivery. However, our series showed a prolongation of both bleeding and discharge. Ten patients had onset of the above symptoms before delivery, 10 patients had onset of symptoms from delivery, 8 patients had symptoms more than one month after delivery and 3 patients were asymptomatic.

COMPLICATIONS: Obstetrical complications included 5 breech deliveries, 2 sets of twins, 3 term-sized still-born infants, 3 postpartum hemorrhages, and one postpartum endometritis. This latter patient also had a dermoid tumor of the ovary. In addition, one patient had active tuberculosis and one patient developed a vesicovaginal fistula postpartum.

SURVIVAL: Thirty of the 31 patients had had treatment more than two years previously. By this time 2 patients had died of tumor and 3 more were lost to follow-up. Absolute two year survival was 25 of 30 or 83 per cent. Of those lost to follow-up, 2 had advanced disease and are presumed dead. The third had a Wertheim hysterectomy for an early Stage I lesion and is probably alive.

Twenty-five patients had been treated more than five years previously. Fourteen are alive and well, 4 have died of tumor, and an additional 4 have been lost to follow-up. Thus absolute five

year survival was 14 of 25 or 56 per cent. Three of the 4 lost patients had surgery for Stage I lesions and are probably alive. The fourth was alive three years after anterior exenteration for a Stage IV lesion and may or may not have survived. The relative five year survival would probably approach 70 per cent.

TABLE II
SURVIVAL ACCORDING TO TREATMENT

Treatment	Total No.	Pts. Alive At 2 Years		Total No.	Pts. Alive At 5 Years	
		No.	%		No.	%
Radiation	22	18	82	17	11	65
Surgery	8	7	87	8	3	37
TOTAL	30	25	83	25	14	56

Table II shows survival according to type of treatment. All of the deaths occurred in patients treated by irradiation. Five of the 8 patients treated surgically were lost to follow-up. However, because of operative selection and the small number of patients in each group no statistical evaluation is possible.

Survival according to stage of disease is shown in Table III. At two years, survival was excellent even in advanced disease. This trend continued

TABLE III
SURVIVAL ACCORDING TO STAGE OF DISEASE

Stage	Total	Pts. Alive At 2 Years	Total	Pts. Alive At 5 Years
I	14	12	11	6
II	12	9	10	6
III	2	2	2	1
IV	2	2	2	1
TOTAL	30	25	25	14

at five years. With the addition of 4 surgically treated Stage I patients who were lost to follow-up, but are probably alive, five years survival in Stage I becomes 10 of 11; while total survival exceeds 70 per cent.

Discussion

The incidence of carcinoma of the cervix in the puerperium in our series was 0.02 per cent of 41,165 deliveries. Other reported series have shown carcinoma of the cervix to complicate pregnancy in from .005 to .20 per cent.¹

The average age in our study group was 32 years. Other studies have shown carcinoma of the cervix associated with pregnancy in patients from 16 to

45 years with a group average of about 30 years.¹ The average age of nonpregnant patients with carcinoma of the cervix at our institution is 47 years. Thus, a significant difference existed between the postpartum group and nonpregnant patients with this lesion.

The increased incidence of carcinoma of the cervix with multiparity has also frequently been noted. Our average parity of 7.8 confirms this. The question of whether carcinoma of the cervix in these younger patients followed a large number of deliveries was answered in Table I. Parity tended to increase with age while the number of cases in each age group remained relatively constant. Thus, in the 20-25 year group 6 patients had an average parity of 3.8 while in the 41-45 year age group, 4 patients had a 10.3 average parity.

Ten of the 31 patients had onset of symptoms during pregnancy, but diagnostic procedures were not implemented. Another 10 patients had onset of symptoms at or immediately after delivery. Thus, 20 patients could and should have been diagnosed except for patient and/or physician delay.

Our series showed few complications when compared with previous studies. Three patients had postpartum hemorrhage and one developed postpartum endometritis.

The principle of therapy was no different than in routine treatment of carcinoma of the cervix in the nonpregnant patient. More patients in our series underwent radical surgery because they were young, healthy patients with Stage I lesions.

The literature almost universally condemns vaginal delivery with patients who have invasive carcinoma of the cervix for fear of uncontrollable hemorrhage, threat of infection, or dissemination of the disease to the lymphatics or circulation.¹¹ Waldrop and Palmar¹¹ were the only authors found who openly recommended vaginal delivery in the presence of cervical carcinoma. Kottmeier³ concluded in 1962 that carcinoma of the cervix diagnosed in the immediate postpartum period had a poor prognosis, but in a more recent article,⁵ felt that according to current experience, this did not seem to be true. Two and five-year survival rates in our series compared favorably with Kottmeier and others.

Summary and Conclusions

1. Thirty-one cases of carcinoma of the cervix in the puerperium were found at the University

of Arkansas Medical Center between 1945 and 1965.

2. The incidence of carcinoma of the cervix in the puerperium in our study group was .02 per cent.

3. An association with grand multiparity was noted; however, infection and hemorrhage did not play an important role in our series.

4. Carcinoma of the cervix occurred fifteen years earlier in pregnant patients than in nonpregnant patients.

5. Two-year survival in 30 patients was 83 per cent and five-year survival in 25 patients was 56 per cent. Although our series was small, the trend toward a poorer prognosis in pregnant patients as reported by most authors did not seem to be followed in our series.

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ANSWER ON PAGE 265



WHAT IS YOUR DIAGNOSIS ?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 265



HISTORY: Sixteen year old white male with pain and swelling of left knee of six months duration.



PUBLIC HEALTH AT A GLANCE

Arkansas Poison Control Centers

The Arkansas State Department of Health, cooperating with the National Clearinghouse of Poison Control Centers, Division of Accident Prevention, Public Health Service, U. S. Department of Health, Education and Welfare has established seven (7) Poison Control Centers throughout Arkansas.

The Director of the Maternal and Child Health Division, Arkansas State Department of Health, has been designated as the State Poison Control Coordinator.

The seven Poison Control Centers, as pinpointed on the Arkansas State map, were arranged in the specific locations due to the request of the individual Hospital Administrator, the interest of the local physicians and the local County Medical

Society. The centers are strategically located in order to serve all areas of the state.

In 1965 with only five Poison Control Centers established in Arkansas. The following information was compiled: A total of accidental ingestions was 159 cases. The leading ingestions were 54 from internal medicine, 23 ingestions were from cleaning and polishing agents and 21 ingestions were from aspirin.

Total accidental ingestions of children under 5 years of age were 86 cases. The leading ingestions of these Arkansas children were: 26 cases of internal medicine; 18 cases from aspirin; 18 cases from cleaning and polishing agents; 11 cases from pesticides; 9 cases from Kerosene and Petroleum products and 7 cases from Cosmetics.

The accidental ingestions from internal medicine of children under 5 years were mainly psychopharmacologic agents; sedatives (barbiturates and non-barbiturates); analgesics; hormones, estrogenic preparations; and vermifuge.

National Clearinghouse Aids Local Centers

The National Clearinghouse for Poison Control Centers, a branch of the Public Health Services Division of Accident Prevention, collects and disseminates information on prevention and treatment of accidental poisoning to more than 550 Poison Control Centers.

Children under five swallowed aspirin in one-fourth of all cases of accidental ingestions of harmful substances last year as reported to the National Clearinghouse. The national report showed that harmful ingestions after aspirin of this age group most frequently involved soaps, detergents and cleansers, bleach, vitamins and minerals, insecticides, plants, polishes and waxes, hormones (including oral contraceptives and thyroid tablets), tranquilizers, and other analgesics and antipyretics.

The Department of Health, Education and

ARKANSAS POISON CONTROL CENTERS



1. University of Arkansas Medical Center, Little Rock
2. Osceola Memorial Hospital, Osceola
3. Boone County Hospital, Harrison
4. Sparks Memorial Hospital, Fort Smith
5. St. Edwards Mercy Hospital, Fort Smith
6. Jefferson Hospital, Pine Bluff
7. Warner Brown Hospital, El Dorado

Welfare, Public Health Service, Region VII, Accident Prevention and the National Clearinghouse for Poison Control Centers suggests that before a center is designated, the physicians and the hospital administrators should have the following guidelines or suggestions:

1. A physician should be designated as Director for the Center.
2. A telephone number for the Center should be listed with both the State and the Directory of Poison Control Centers.
3. It is desirable for the Director to agree on a plan for acquainting the physicians in the area to be served of the availability of the service. Also, the Director should undertake responsibility for orienting other physicians on the use of the reference material.
4. Decision should be made as to whether emergency calls from the lay public or only physicians will be answered.
5. The administrator should designate a person to file incoming information cards and to prepare poison report forms if the physician does not wish to record the information himself.
6. The matter of using the poison report forms in triplicate should be discussed with the person who will fill out the forms and instructions given for forwarding the white and green copies to the State Health Department periodically.

It is believed that these suggestions will result in a sounder operation for both the Poison Control Center and the State Department of Health.

Listed below are the locations and personnel responsible for the Arkansas Poison Control Centers.

Coordinator: Dr. Rex Ramsay, Jr., Director,
Division of Maternal & Child Health
Poison Control Coordinator
Little Rock, Arkansas 72201

Telephone FRanklin 4-6361, Extension 57
Administrative Assistant: Mr. Herbert F. Truxton,
Health Educator
Division of Maternal and Child Health

Arkansas State Board of Health
Little Rock, Arkansas 72201

1. University of Arkansas Medical Center
4301 West Markham St.
Little Rock, Arkansas 72205
Telephone MOhawk 4-5000
Dr. Roger Bost, Director, Poison Control Ctr.
Dr. Ben Cabell, Coordinator,
Poison Control Center
2. Osceola Memorial Hospital
Osceola, Arkansas 72370
Telephone LOcust 3-2611
Dr. L. D. Massey, Director,
Poison Control Center
3. Boone County Hospital
620 North Willow Street
Harrison, Arkansas 72601
Telephone EMpire 5-6141, Extension 120
Dr. Joe Bill Wilson, Director
Poison Control Center
4. Sparks Memorial Hospital
1311 Eye & 2121 Towson
Fort Smith, Arkansas 72903
Telephone SUNset 2-2088
Dr. James M. Post, Jr., Director,
Poison Control Center
5. St. Edwards Mercy Memorial Hospital
1411 Roger Avenue
Fort Smith, Arkansas 72901
Telephone SUNset 2-3071
Dr. James M. Post, Jr., Director,
Poison Control Center
6. Jefferson Hospital
1515 West 40th Avenue
Pine Bluff, Arkansas 71601
Telephone JEfferson 5-6800
Dr. T. E. Townsend, Director,
Poison Control Center
7. Warner Brown Hospital
460 West Oak Street
El Dorado, Arkansas 71730
Telephone UNion 3-3656, Extension 309
Dr. A. R. Clowney, Director,
Poison Control Center





EDITORIAL

The Third World Congress Gastro-Enterology

Alfred Kahn, Jr., M.D.

The Third World Congress Gastro-Enterology was an amazing meeting and despite its distance and its dissimilarity from the Annual Session of the Arkansas Medical Association, much that was appealing about this huge meeting could be translated to our local scene on a more modest scale.

The first factor of interest was the effort to get the visitors settled in their hotels. Over the loud speaker system in the Tokyo airport arriving passengers heard an English announcement "Members of the Third World Congress Gastro-Enterology please report to the reception desk opposite the main entrance". Despite the fact that several thousand attended this meeting, a small badge was given and the individual's name and hotel was obtained. Then a group of young men and women helped the language bound travelers get a taxi or an appropriate bus to the correct hotel. It is of incidental interest but of importance to the wives that the Tokyo hotels are superb.

Hospitality did not end at the airport. The Japanese hosts had arranged numerous interesting side trips with English speaking guides; they were inexpensive, fun, and educational and included typical theater, museums, nearby sites of interest, etc. They also ran buses from various hotels to the meeting.

The scientific program was enhanced by the diversity of origin of the participants. The dissimilarities of view help form an opinion on a controversial point as much as the similarities. The program was not just put on by one Japanese faculty. It was presented by many different faculties (and of course, nationalities). The program was large enough to have separate speakers present papers with slides simultaneously; there were

wireless simultaneous translations into English and several other languages via a small transistor-like radio receiving set. It was of great interest to note that just as the annual session of the Arkansas Medical Society some of the meetings were very crowded and others were poorly attended—this did not seem to disturb anyone at all.

Several of the programs were of considerable significance. Great interest was displayed in the papers presented on Intestinal Absorption. A number of the speakers related the physiology and chemistry of absorption to the appearance of the epithelial cell as seen by the electron microscope. The micro-villi play a very important role, not alone as a means of increasing the surface area but certain enzyme activities occur on the cell border. Failure in the absorption of fats, disaccharides, Vitamin B-12, etc., were discussed. Perhaps, the most interesting paper on a rare condition was presented by Ruffin of Duke University on Whipple's Disease. As is known by microscopists, in Whipple's Disease there is a peculiar staining in the mucosa of the small bowel; Ruffin showed by electron microscopy that this abnormality was due to the presence of numerous bacteria clustered together. When antibiotics are administered, these cases improve and simultaneously, the bacteria can be seen to break down; a one year course of antibiotics is recommended.

Liver diseases symposiums attracted much interest. Several papers were presented on catheterization as a diagnostic tool. Tumen of Philadelphia stated selective arterial angiography to outline the arterial supply of the liver and the course of the blood was now being used frequently in his clinic and was no longer considered just an experimental tool. Slides taken of x-rays during

hepatic angiography demonstrated varices, neoplasms, and even bleeding sites. This type of study was of particular help in certain cases of bleeding of undetermined origin, and the patient is apparently able to tolerate the procedure with minimal ill-effect.

The significance of the interchange of ideas from such widely separated clinics and laboratories cannot help but act as a very strong catalyst to further productive work in this field. The local application of this idea in Arkansas is that program speakers from widely separated geographic areas should be sought; they will see different facets of a problem and will present them as counterpoint to each other. Some speakers from Mexico and Canada would not strain our budget unduly.

The visitor at a foreign meeting can seldom re-

sist the opportunity to visit nearby places of interest: in this case Hong Kong. This, not the United States, is probably the last bastion of free enterprise. This is not to be taken as an endorsement or approval for cheap labor, unreasonable tax benefits, over long work hours, etc., which sometimes occur in these situations. But the average American can not help but be amazed at the energy, initiative, and competitive drive that goes into Hong Kong businesses. Actually, the same energy is manifested in other Asian areas as Japan, but it appears more restrained. All of this is certainly convincing proof to any visitor that the best American export are the twin ideas of individual freedom and the private competitive enterprise system. But it is equally apparent that the Asian folks could readily outstrip us if we ever get lazy or if our productivity per man hour falls.

ANSWER—Electrocardiogram of the Month

RATE: A: 136 V: 150

RHYTHM: A-V dissociation with interference

PR: — QRS: .05 QT: .23

SIGNIFICANT ABNORMALITIES:

P waves occur at different rate than QRS with P-P interval .44. Tall R waves right precordial leads; prominent S waves all leads. Increased voltage precordial leads.

INTERPRETATION: Abnormal

A-V dissociation with interference. Right ventricle hypertrophy or consistent with single ventricle.

COMMENT:

In this instance, separate centers control the atrio and ventricles, although occasionally the ventricles respond to the atrial pacemaker.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Reticulum cell sarcoma of bone.

X-RAY FINDINGS: Mottled areas of bone destruction involving the proximal aspect of the left tibia. There is reactive periosteal calcification and a Codman's triangle over the proximal aspect of the tibia medially. This tumor cannot be differentiated from a Ewing's bone sarcoma by x-ray.



Physician Manpower: Medical School Applicants

For the first time in a four-year period, the number of applicants to U.S. medical schools failed to show an increase over the previous year's total. The 18,703 individuals making application to the 1965-66 first-year medical school class submitted a total of 87,111 applications for a record average of 4.7 per individual. Slightly more than 48 per cent of all 1965-66 applicants were offered admission. The ratio of 2.08 applicants to one acceptance was exceeded in the last 13 years only by the previous year's ratio of 2.12 to one.

Table 1 presents a summary of the application activity occurring for each of the classes from 1953-54 through 1965-66. It is likely that the decrease in applicants to the 1965-66 class represents a single year's phenomenon. The number of individuals taking the Medical College Admission Test (MCAT) is a reasonably accurate predictor of the number of applicants for subsequent years. The number taking the test in 1965 was not appreciably different from the number of individuals taking the MCAT the preceding year. Therefore, no significant change is anticipated in the number of applicants for the 1966-67 entering class.

Noteworthy at this time of great national interest in increasing the supply of physicians is a decrease of 76 in the total first-year enrollment for 1965-66. Analysis of the data from individual schools, however, indicates that only 33 fewer first-year students entered school for the first time in 1965-66. The number of previously enrolled first-year students fell from 249 in 1964-65 to 206 in 1965-66, accounting for the other 43 students. Three schools, which reduced enrollments in an attempt to strengthen their programs, account for all of this decrease in net enrollment. Eighty-five schools made either no change or only minor changes in the size of their entering class. In considering these findings, it should be remembered that the Health Professions Educational Assistance Amendments were not enacted until October 22, 1965. The direct effect on class size of the large improvement grants of that legislation will not be evident until the enrollment of the 1967-68 first-year class.

Approximately 98 per cent of all 1965-66 applicants took the MCAT. Their scores are quite comparable to those obtained by applicants in previous years. The rise in Quantitative Ability (QA) scores is consistent with a trend noted in

TABLE 1
SUMMARY OF APPLICATION ACTIVITY 1953-54 TO 1965-66

First Year Class	Total Applicants	Applications Per Applicant	Total Applications	Accepted Applicants	First Year Enrollment*	Per Cent of Total Applicants Accepted
1953-54	14,678	3.3	48,586	7,756	7,449	52.8
1954-55	14,538	3.3	47,568	7,878	7,576	54.2
1955-56	14,937	3.6	54,161	7,969	7,686	53.4
1956-57	15,917	3.8	59,798	8,263	8,014	51.9
1957-58	15,791	3.9	60,951	8,302	8,030	52.6
1958-59	15,170	3.9	59,102	8,366	8,128	55.1
1959-60	14,952	3.9	57,888	8,512	8,173	56.9
1960-61	14,397	3.8	54,662	8,560	8,298	59.5
1961-62	14,381	3.7	53,834	8,682	8,391	60.4
1962-63	15,847	3.7	59,054	8,959	8,642	56.5
1963-64	17,668	4.0	70,063	9,063	8,842	51.3
1964-65	19,168	4.4	84,571	9,043	8,836	47.2
1965-66	18,703	4.7	87,111	9,012	8,760	48.2

* Includes previous enrolled students.

Enrollment for 1953-61 based on AAMC-AMA Liaison Questionnaire data.

Enrollment for 1962-66 based on AAMC Applicant Study data.

Submitted by the Division of Education of the AAMC.

TABLE 2
MEAN MCAT SCORES OF ACCEPTED, REJECTED, AND TOTAL APPLICANTS
ACCEPTED APPLICANTS

Year	MCAT SUBTESTS				No. Taking MCAT	Total Number	Percentage Taking MCAT
	VA	QA	GI	SCI			
1953-54	519	525	524	530	7,426	7,756	95.7
1956-57	525	525	526	519	8,012	8,263	97.0
1959-60	529	527	527	527	8,449	8,512	99.3
1962-63	541	537	541	545	8,920	8,959	99.6
1965-66	541	583	565	519	8,983	9,012	99.7

REJECTED APPLICANTS

Year	MCAT SUBTESTS				No. Taking MCAT	Total Number	Percentage Taking MCAT
	VA	QA	GI	SCI			
1953-54	461	457	472	460	5,801	6,922	83.8
1956-57	463	458	473	445	6,859	7,654	89.6
1959-60	470	455	473	449	6,019	6,440	93.5
1962-63	475	464	485	460	6,515	6,888	94.6
1965-66	473	502	511	466	9,324	9,691	96.2

TOTAL APPLICANTS

Year	MCAT SUBTESTS				No. Taking MCAT	Total Number	Percentage Taking MCAT
	VA	QA	GI	SCI			
1953-54	491	495	501	499	13,227	14,678	90.1
1956-57	496	494	502	485	14,871	15,917	93.4
1959-60	504	497	505	494	14,468	14,952	96.8
1962-63	515	506	517	509	15,435	15,847	97.4
1965-66	507	542	538	507	18,307	18,703	97.9

other nationally administered ability tests in recent years. Table 2 presents mean MCAT scores of accepted applicants, rejected applicants, and the total applicant groups in selected years from 1953-54 through 1965-66.

It cannot be assumed that all accepted applicants are more qualified for admission to medical school than all rejected applicants. A number of factors serve to limit the selectivity of both medical schools and applicants. State schools are often constrained to give preference to residents of their state. In addition, applicants often limit their application activity to certain schools or regions due to financial or other considerations. As a result, applicants with adequate credentials may not be accepted because of unusually strong competition in a given school or region. Applicants are aware of the competitive nature of the admission procedure as evidenced by the increased number of applications filed per student in recent years. It is not possible to determine what proportion of rejected applicants could in fact perform acceptably as medical students and practicing physicians. It seems reasonable to assume that a considerable number of these rejected applicants would do satisfactory work in medical school if sufficient additional places were available.

Foreign-trained physicians have for the last 15 years constituted an increasing proportion of the

medical staff of U.S. hospitals. Over 1,300 are licensed annually to practice medicine in the U.S. The use of foreign medical graduates to meet physician manpower needs in the U.S. will be detailed in the next issue of Datagrams.

THE MONTH IN WASHINGTON

Washington, D.C.—A new minimum wage law is expected to cause hospital and nursing home costs to rise.

It brings about 1.5 million workers in hospitals and nursing homes under the federal minimum wage program for the first time. The minimum wage for them is set at \$1.00 an hour for next year, \$1.15 an hour in 1968, \$1.30 an hour in 1969, \$1.45 an hour in 1970 and \$1.60 an hour thereafter.

The new law also increases the minimum wage for about 30 million workers presently covered to \$1.40 an hour on Feb. 1, 1967, and to \$1.60 an hour on Feb. 1, 1968.

On a related front, Senate Democratic Leader Mike Mansfield (Mont.) said he believed the Health, Education and Welfare Department was going too fast in enforcing racial desegregation of southern hospitals and schools. He told newsmen he supported the Senate's denial of \$500,000 sought by HEW to pay civil rights investigators.

He said the Senate wants to see desegregation handled carefully rather than impulsively.

Hospital and school authorities "will be on trial," Mansfield said, and if they abuse the suggested latitude, Congress can move quickly to correct the situation.

"We have to take things slowly . . ." he said. "This is an area of great delicacy. The thing to do is to do it right and not precipitously."

The Senate approved legislation that would give nursing homes more liberal payment for medicare patients. The bill amends the definition of reasonable costs to include return on the fair market value of the facilities. The existing federal reimbursement formula is two percent above operating costs. Nursing home operators contend this is too low.

HEW Undersecretary Wilbur Cohen said the government will watch carefully to determine whether patients are admitted unnecessarily to hospitals next year in order to qualify them for medicare's nursing home benefits. The law requires that nursing home benefits be made available only to medicare beneficiaries who have had a hospital stay of three days or more and only when the nursing home care is considered an extension of the hospital treatment. However, several bills have been introduced in Congress to eliminate the hospital stay requirement.

* * * * *

The American Medical Association supported a bill that would extend the air pollution program and authorize increased appropriations for it.

In a letter to a Senate subcommittee, Dr. F. J. L. Blasingame, executive vice president of the A.M.A., noted that the association's House of Delegates in June, 1965, had adopted a statement recognizing the health hazards resulting from air pollution and recommending that feasible reduction of all forms of air pollution should be sought by all responsible parties. The pending bill (S. 3112) "can further this end," he said.

"We believe the effect of this amendment will be beneficial," he said. "The grant mechanism should bolster local and regional operations, encouraging a greater degree of local initiative, particularly in interstate and intermunicipal areas. In addition, the bill would eliminate a serious inequity in the present law. Certain metropolitan regions are penalized in that they cannot obtain assistance for maintaining their currently large and expensive programs, while a metropolitan re-

gion without a program could receive up to two-thirds of the cost of creating a new program. Under the proposed legislation this inequity would be eliminated."

* * * * *

The Senate cleared the path for a new approach to narcotics addiction which would substitute hospital treatment for long-term prison sentences.

The Senate approved the legislation by voice vote without dissent and sent it to a Senate-House conference committee for adjustment of differences with a House version.

The key to the bill is civil commitment for the addict involved in a non-violent crime. It would provide voluntary pre-trial commitment in lieu of prosecution and compulsory post-conviction commitment in lieu of punishment. In addition, the bill would provide voluntary and compulsory commitment of certain addicts not charged with any crime. The addicts would be committed to the Surgeon General for confinement and treatment in a hospital or institution. Treatment would continue within the community after the addict is discharged.

The legislation also would establish federal post-hospitalization treatment centers and also give courts more flexibility in dealing with youthful drug offenders.

Sen. John L. McClellan, D-Ark., who brought the bill to the Senate floor, said it "affords an opportunity for narcotics addicts who wish to extricate themselves from a hopeless life of addiction and crime to have themselves committed for treatment."

"It also affords a civil, non-penal procedure for the compulsory commitment of addicts not charged with a crime so they may be cured and rehabilitated before they are forced by their addiction into a repetitious pattern of addiction and crime," he added.

Sen. Thomas J. Dodd, D-Conn., who for years has studied the problem of narcotics, said the bill "will lead to a wiser, more humane, and more effective treatment of narcotics addicts . . ." He said the Senate was undoing the mistake of 10 years ago when it wrote legislation which made "super-criminals out of many narcotics addicts."

* * * * *

An industry spokesman said drug makers and distributors will comply with a government request that the number of candy-flavored children's aspirins per bottle be limited to 25.

A limit of 50 tablets per bottle was agreed upon in a government-industry conference in 1955 and has been observed by producers of 95 percent of all children's aspirins. However, some authorities consider this number now to be dangerous, even lethal under some conditions, when taken by a child.

Instead of including a number-per-bottle limitation on children's aspirin in a "child protection" bill, the House Commerce Committee urged that the Food and Drug Administration seek voluntary cooperation from the aspirin industry. The spokesman said the industry would cooperate and that 25 one-quarter grains generally was accepted as a non-hazardous amount.

The House and Senate approved differing versions of the legislation which would ban the sale of children's toys containing hazardous substances. It was left for a conference committee to adjust the differences.

Both versions also would ban dangerous household substances that cannot be made safe by cautionary labeling. These include such items as a flammable and explosive water repellent blamed for three deaths.

RESOLUTIONS



WHEREAS, the passing from this life of Dr. Charles A. Smith, a member of the Pulaski County Medical Society, is noted with sincere sorrow, and

WHEREAS, this sorrow felt by his fellow physicians is doubly felt in that a promising career was so early brought to an end, and

WHEREAS, Dr. Smith had in the few months he had been a member of this Society earned the respect, admiration and love not only of his colleagues, but his patients and the community as well;

BE IT THEREFORE RESOLVED:

THAT, the Pulaski County Medical Society express to his family the sincere heartfelt sympathy of this organization,

THAT, a copy of this resolution be made a part of the permanent minutes of this Society,

THAT, a copy be sent to Dr. Smith's family, and

THAT, a copy be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee
Pulaski County Medical Society

John McCollough Smith, M.D., Chairman
William L. Fulton, M.D.

T. Duel Brown, M.D.



OBITUARY

Dr. Austin F. Barr

Dr. Austin F. Barr of Forrest City died September 29, 1966 at the age of 77. He was born December 7, 1888, at Calamine, Arkansas. He was the son of Julia Knox Barr and Dr. A. D. Barr. He was educated in Sharp County schools before entering Hasbrouck Institute, Jersey City, New Jersey, for preparatory and pre-medical education. He graduated from Hasbrouck in 1908 and spent three years studying medicine at the University and Bellevue Hospital Medical College in New York City. He received his M.D. degree from Jefferson Medical College, Philadelphia, in 1912. He practiced medicine in Jackson County, Arkansas, until 1923. He then was employed by the Louisiana State Health Department and the U.S. Public Health Service as director of health units in Claiborne and Beauregard parishes in Louisiana. In 1925, he was transferred to Hot Springs National Park where he organized the health units of Hot Springs and Garland County. From 1926 to 1929, he was city health officer at Little Rock and professor of public health at the University of Arkansas School of Medicine in 1926-27. Dr. Barr then re-entered private practice at Cherry Valley, where he remained until moving to Forrest City in 1951. An automobile accident in November of 1960 forced him to retire from active practice. He was a member of the St. Francis County Medical Society, an honorary member of the Arkansas Medical Society, and the American Medical Association. He was also a Mason and a Shriner; a member of Poinsett Lodge 184, F & AM; the Little Rock consistory of the Sahara Temple, A.A.O.N.M.A.; and Court 38, the Royal Order of Jesters. Survivors include his widow and one son.



PERSONAL AND NEWS ITEMS

Dr. Pierce Speaks

Dr. John A. Pierce of Little Rock was guest speaker at a meeting of the Little Rock Chapter of the National Association of Retired Civil Employees in October.

Dr. Guthrie Aboard S.S. HOPE

Dr. James Guthrie of Camden is currently serving a voluntary tour of duty aboard the S.S. HOPE, the famed white hospital ship now on a teaching-treatment mission to Nicaragua. Currently a general practitioner affiliated with Ouachita Hospital in Camden, Dr. Guthrie received both his undergraduate and medical degrees from the University of Arkansas.

Dr. Schoettle Attends Meeting

Dr. Glenn Schoettle, West Memphis surgeon, attended a clinical congress of the American College of Surgeons at San Francisco, California in October. He became a Fellow of the American College of Surgeons in 1960. He is also a diplomat of the American Board of Surgeons, and a member of the Southwestern Surgical Congress.

Dr. Gladden Elected

Dr. Jean C. Gladden of Harrison was elected a delegate-director of the American Cancer Society in October at New York. He is a past president of the Cancer Society's Arkansas Division and a member of its board of directors.

Dr. Hawkins Attends Clinics

Dr. M. C. Hawkins, Jr. of Searcy recently attended surgical clinics at Charity Hospital and Ochsner's Clinic in New Orleans. He also attended a surgical conference at Ochsner's Clinic.

Dr. Harris Suffers Burns

Dr. Haymond Harris, Newport physician, suffered first, second and third degree burns over sixty per cent of his body at his cabin on Greers Ferry Lake on September 25th. He was burned in an explosion which occurred when he was lighting a butane gas heater in the cabin. Drs. Grimsley Graham, Ben Lincoln, and James Sloan, all of Little Rock, have volunteered to fill in for

Dr. Harris while he recuperates.

Dr. Hyder Returns

Dr. Harold E. Hyder, formerly of Morrilton and who has been practicing in Saudi Arabia, has returned to the United States. He is now attending graduate school in industrial medicine at Kettering Laboratory at the University of Cincinnati.

Thoracic Society Meets

The Arkansas Thoracic Society Fall Scientific Session was held at the University of Arkansas Medical Center Auditorium at Little Rock in September. Among the physicians participating in the program were: Dr. Willie R. Harris of Newport; Dr. Larkin Wilson of El Dorado; Dr. Frank McCutcheon of Fayetteville; Dr. James Cornett, Dr. William Hefley, and Dr. Robert Abernathy of Little Rock.

Dr. Robins Appointed

Dr. R. B. Robins of Chicago, formerly of Camden, has been appointed to a twenty member National Advisory Committee on Venereal Disease to the Public Health Service.

Cancer Society Elects Officers

Dr. A. T. Gillespie of Little Rock has been elected president of the Pulaski County Unit of the American Cancer Society. Physicians serving as new directors are Dr. Albert Johnson, Dr. John R. Stotts, and Dr. Frank R. Ludwig.

Dr. Livingston Has Associate

Dr. Bill B. Livingston announces that Dr. Jack A. King has joined him in the practice of medicine at Camden. Before coming to Camden, Dr. King was the industrial physician at the Ames Laboratory of the U. S. Atomic Energy Commission at Iowa State University, Ames, Iowa.

Dr. Carter Celebrates

Dr. A. L. Carter of Berryville celebrated his 80th birthday September 17, 1966. A party was given in his honor at the Berryville Drug Store by the owners and employees of the store. Dr.

Carter started practicing medicine in 1921. He was a school teacher for six years before going to medical school. He received his license to practice medicine from the University of Tennessee at Memphis. Dr. Carter is credited with offering Berryville its first hospital service when he opened a private hospital in 1941. The hospital is still in operation.

Warner Brown Elects Officers

Dr. Sam Jameson of El Dorado was elected chief of staff for 1966-67 of Warner Brown Hospital. Other officers elected were Dr. W. S. Rainwater, vice chief; and Dr. John H. Pinson, secretary.

G. P. Assembly Held

The 19th annual Scientific Assembly of General Practice was held in October at the Jeff Banks Memorial Student Center at the University of Arkansas Medical Center. Seven members of the faculty of the University of Tennessee School of Medicine spoke and a team of physicians from the University of Arkansas School of Medicine presented a "Clinical Evaluation and Work-Up of a Potential Candidate for Open Heart Surgery".

Dr. Sneed Moves

Dr. John W. Sneed, Jr., Conway ophthalmologist, has closed his office and moved with his family to a cattle farm near Gassville, in northern Arkansas. Dr. Sneed has re-opened his practice at 613 South Street in Mountain Home, a neighboring town.

Dr. Scully Retires

Dr. Francis J. Scully of Hot Springs has retired at the age of 75 after 51 years as a physician. He is the author of a new book entitled "Hot Springs, Arkansas and Hot Springs National Park—The Story of a City and the Nation's Health Resort" which was released recently. The book required thirty years of research and nine years of writing.

Addition to Doctor's Building

To provide for the growing need for professional medical office space in the Greater Little Rock area, the Little Rock Land Company, Dr. Calvin J. Dillaha, President, announced on October 22, 1966, a proposed 82,600 square feet addition to The Doctor's Building at 500 South University Avenue, Little Rock. Cost is in excess of

\$2,000,000.00. The Land Company proposes to add one floor to its present structure, which has been fully leased, and to add an annex adjoining the building to the west.



PROCEEDINGS OF SOCIETIES

Benton

The Benton County Medical Society will sponsor Tuberculin Tine Test clinics for students in schools in Benton County. A physician from the Medical Society will give the test.



Treatment of Malignant Melanomas of the Skin

F. V. Nicolle, W. H. Mathews, and J. D. Palmer (Montreal General Hosp, Montreal) *Arch Surg* 93:209-215 (Aug) 1966

Presented is a detailed study of 150 malignant melanomas of the skin followed for at least five years, and the role of chemotherapy in a more recent group of cases is noted. Of the significant prognostic factors discussed, the microscopic level of dermal invasion is considered the most accurate and useful. A classification based on this factor is shown to provide very useful indication for the choice of cases justifying prophylactic regional node excision. A plan of treatment of malignant melanomas, considered in three principal categories, is recommended. Wide local excision with skin grafting, if necessary, is recommended for stages 1 and 2 with no regional node metastases. Wide local excision and prophylactic regional node dissection is recommended for stage 3 with no regional node metastases. Stages 1, 2, and 3 with involved nodes should be treated by perfusion followed immediately by local excision and regional node dissection. Local excision of recurrent lesions may be useful and regional perfusion has given some good temporary results.



Sponsored by Arkansas Tuberculosis Association

EMPHYSEMA MORTALITY IN RELATION TO RESPIRATORY FUNCTION

In a cooperative study of fifteen Veterans Administration hospitals, a correlation was found between life expectancy and the degree of physiologic disturbance at the time of entrance into the study. A history of cigarette smoking was given by 96 per cent of the patients.

This investigation was undertaken primarily to relate the life expectancy of patients with chronic obstructive pulmonary disease (COPD) to the pulmonary function of the patient at the beginning of the observation period.

With the cooperation of 15 Veterans Administration hospitals, a prospective study was designed which would insure almost complete followup data. The inter-hospital cooperative study permitted the inclusion of a large number of patients in a relatively short period of time. The patients were from widely separated areas in the United States, and thus the group was representative of the nationwide problem.

Patient's with other diseases from which an early death might be anticipated and those with significant cardiac disease (except cor pulmonale) were excluded from the initial selection. Furthermore, patients were admitted to the study only if the ratio of their residual volume (RV) to total lung capacity (TLC) was 35 per cent or greater, and their TLC was greater than 80 per cent of predicted normal value. These requirements were met by 487 patients between October 1957 and July 1960.

The group was arbitrarily divided into three categories of ventilatory abnormality on the basis of the absolute value of the forced expiratory volume in 1 second (FEV₁): an FEV₁ of >1.49; 0.5 to 1.49; and <0.5 L. This pulmonary function test was chosen as the principal method for describing the degree of ventilatory insufficiency

because it has been shown to correlate well with other measurements of ventilatory disturbance and because it is now widely used in evaluating patients in hospitals, doctors' offices, disability examinations, and screening programs for respiratory disease.

The mean age of the patients was 57.8 years. The relation of FEV₁ to age was not significant, but a significant decrease in mean weight occurred with decreasing FEV₁. More than half of the patients had a history of pneumonia, some also had other serious pulmonary disease. Only 12.5 per cent denied all previous major pulmonary diseases.

SMOKING A FACTOR

As for smoking, 96.4 per cent of the patients were or had been cigarette smokers—71.1 per cent were still smoking. Medium and heavy smokers were distributed similarly among the three FEV₁ categories. When the distribution of patients with different smoking habits within each of the FEV₁ categories was calculated, it was found that patients with a severe ventilatory defect usually had smoked for more than 35 years.

In the number per year and total weeks of involvement, the incidence of prolonged respiratory tract infections was high. Five or more infections per year were reported by 33.3 per cent and ten or more weeks of infection per year were reported by 20.3 per cent. There was little if any correlation between FEV₁ category and number or duration of these infections.

The group with an FEV₁ > 1.49 included a significantly higher proportion of patients who did not wheeze than did the other two groups.

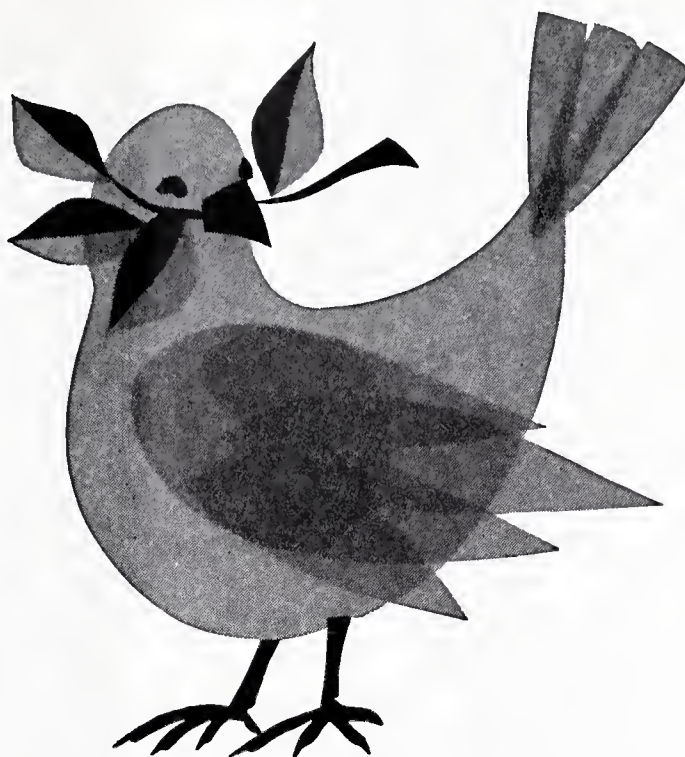
MORTALITY RATES

At four years of follow up, the cumulative mortality rate, computed by the life-table method, for the 487 patients was 53 per cent. This is in contrast to the four-year cumulative mortality rate for 58-year-old white men in the United States which in 1961 was 8.3 per cent.

The mortality rate for 98 patients with FEV₁

ATTILIO D. RENZETTI, JR., M.D., JOHN H. McCLEMENT, M.D., and BERTRAM D. LITT. *The American Journal of Medicine*, July, 1966.

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¹ Riese, J. A.: Amer. J. Gastroent. 28:541 (Nov.) 1957

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> 1.49 L was 26 per cent at four years. For 320 patients with FEV₁ of 0.5 to 1.49 L it was 44 per cent at four years; and for 64 patients with FEV₁ < 0.5 L it was 89 per cent at four years. FEV₁ was not measured in five patients.

Mortality rates in the group with cor pulmonale were much higher than those of the other groups in the first two and a half years. However, by four years the patients with carbon dioxide retention but not cor pulmonale had a death rate almost identical with that of the cor pulmonale group.

Of the 487 patients, 83 had an additional major disease. The diseases included tuberculosis, silicosis, bronchiectasis, bullae, and pulmonary surgery. There were no significant differences in mortality between these patients and the others in the group.

When patients from two hospitals between 4,000 and 9,000 feet above sea level were compared with the others, it was found that those at the higher altitudes had significantly lower arterial and oxygen saturations and higher hematocrit values, and that their mortality rates were considerably higher than the others. The incidence of cor pulmonale in these patients was 43 per cent in contrast to 17 per cent in the others.

This study has shown that the prognosis of patients with COPD is significantly affected by the degree of disturbance in gas exchange as estimated from the level of oxygen saturation and pCO₂ in the arterial blood after exercise. When the arterial oxygen saturation was greater than 92 per cent and the pCO₂ lower than 48 mm. Hg, the four-mortality was 33 per cent; when the arterial saturation was lower than 92 per cent, the death rate was 44 per cent; when both oxygen and carbon dioxide deviated abnormally from these quantities, the mortality rate was 72 per cent.

Long survival after an episode of congestive failure from cor pulmonale in patients whose hypoxemia could be decreased suggests that the high mortality is not due to the heart disease itself. Rather this event may identify patients with advanced pulmonary disease that is to some extent irreversible or is characterized by episodes of severe hypoxemia.

Polycythemia did not affect prognosis, a surprising finding in view of the association of polycythemia, hypoxemia, and cor pulmonale. Since it is known that the volume of packed red cells

does not accurately reflect the red cell mass in patients with COPD, this phenomenon may have operated often enough in this group of patients for the presence or absence of an elevated hematocrit value not to be a reliable indicator of those with more severe hypoxia.

In general, the clinical data show that patients with COPD are predominantly white men over 55 years of age with a high frequency of previous pulmonary disease, respiratory tract infection, chronic cough, wheezing, and dyspnea. A history of cigarette smoking in more than 96 per cent of these patients is most impressive and exceeds that which has been recorded for any other condition in which cigarette smoking has been implicated.



Clinical Study of Quinestrol in Infertile Women

M. Roland et al (New York Fertility Institute, New York) *Fertil Steril* 17:531-540 (July-Aug) 1966

Quinestrol was evaluated in 41 courses of therapy in 34 regularly menstruating women. Doses ranged from 0.025 to 0.15 mg daily for 20 days in most cases. Estrogenic effects on vaginal cytologic examination were prominent at doses of 0.05 mg daily or more. Inhibition of ovulation was noted but was not consistently achieved in doses up to 0.15 mg daily. Although there were some differences, according to the various criteria used to verify its inhibition, ovulation occurred in 40% to 50% of cycles at doses up to 0.15 mg daily. Quinestrol was well tolerated. Patients manifested occasional mild breast tenderness or pelvic congestion but no evidence of gastrointestinal upset in this series. Laboratory safety studies showed no significant alterations. Papanicolaou classifications of cervical epithelium did not change. The most notable clinical finding was a separation between various estrogenic effects at the doses used. No estrogenic proliferative effects at the endometrium were noted with doses up to 0.15 mg daily for 20 days in those cycles in which ovulation was inhibited. This selective minimal endometropic effect may be of considerable clinical value in the therapeutic approach with this agent.

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Vol. 63 No. 8

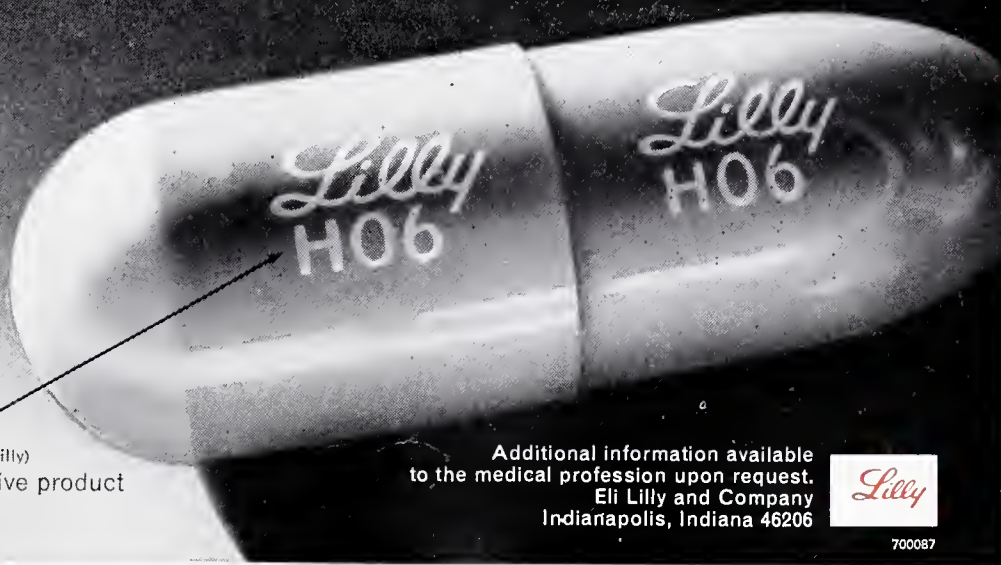
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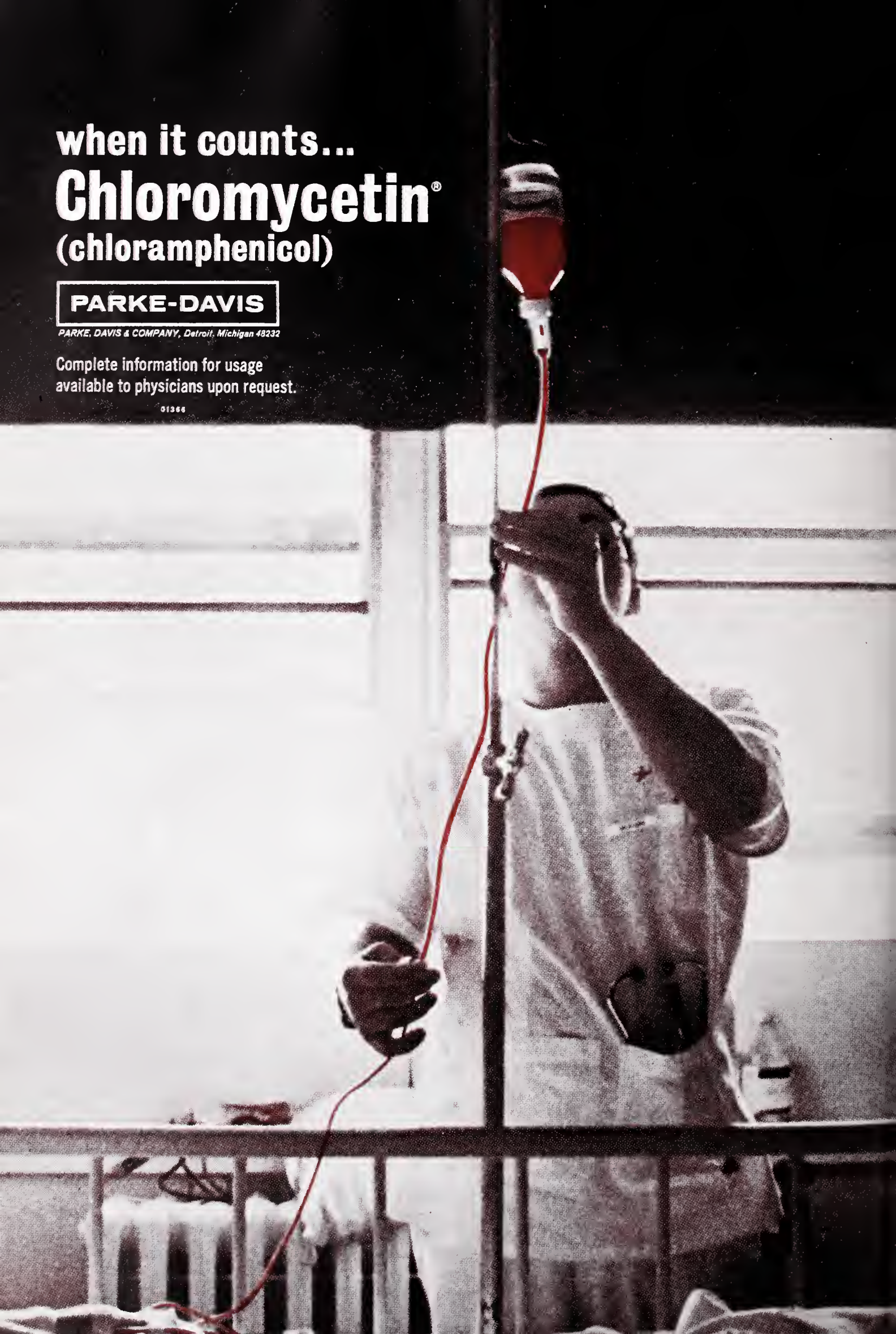
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The Natural History of a Therapy Group Program*

Sidney J. Fields, Ph.D.**

How do group psychotherapy programs develop? A description of how one such program did evolve in a particular setting, a state-supported medical school and hospital, may serve to illustrate. Whether this example is typical or atypical of the pattern existing in other medical teaching centers throughout the country, we do not know. We can be confident, however, that it is not the only one of its kind.

Our group therapy program came into being as an activity of the Department of Psychiatry. The Department itself had been in existence for only two years as a full time teaching and service entity within the medical center structure when the first psychotherapy group was formed in 1953. At that time the staff of the Department and the budget that sustained it were of comparable size—both very small.

Our programs may be said to have been born then, almost 13 years ago, when the Department's first therapy group held its first session. We did not think of it as a program at that time. We were simply starting group psychotherapy. That original group has continued an unbroken existence throughout the years to the present. Seven years ago it was incorporated into our undergraduate medical education curriculum as a teaching device. Groups of Junior medical students, rotating through their clerkship in psychiatry, observed this group in interaction through a one-way mirror. The primary objective here was to enable the students to become aware of and to identify the various defense mechanisms as these appeared in the interaction among the members of the group. How closely this objective was reached is open to question. Evidence that the students had found the experience meaningful in some way became apparent with the publication of the

Caduceus that year. Scattered throughout the yearbook in humorous, tongue-in-cheek fashion was the phrase—"Feelings are Facts," recalling the printed slogan which hangs on the wall of the group therapy room. On the other hand, much less ambiguous evidence of the success of this teaching experiment has recently been furnished by the increasing number of patients referred to the clinic specifically for group therapy from former students who are now in general or specialty medical practice throughout the state. A more recent innovation for teaching purposes involving this same intensive therapy group has been the inclusion of a first-year resident in psychiatry as co-therapist for a six-month period as an integral part of his training.

In 1958, the Adult In-Patient Service was activated with a 26 bed ward. It seemed appropriate to adopt the group approach as a treatment modality in this new therapeutic environment. Accordingly, time was scheduled each week for meetings which all patients on the ward were expected to attend. The sessions were quite general, goals vague, and the overall experience unsatisfactory. We had anticipated that it would become a therapy group as distinct from a total push group or a patient government ward group. The difference seemed to hinge on the matter of motivation on the part of the patients. Motivation to attend and to participate was found to be absent or minimal. We then shifted gears and moved toward becoming a smaller group of selected patients, patients who had expressed a desire to participate. Immediately the psychological climate began to change. A sense of group cohesiveness and identification began to develop. Other patients not invited to join the smaller ward group now began to discover that they wanted to be in it. Under this arrangement we had some control of admissions to the group, though not of discharge since the patient left the group when he left the hos-

*Presented at the Twelfth Annual Convention of the Southwestern Psychological Association, Oklahoma City, April, 1965.

**Associate Professor and Senior Clinical Psychologist, Department of Psychiatry, University of Arkansas Medical Center, Little Rock, Arkansas.

pital. Group goals now became a little clearer. For example, concurrently with their participation in group therapy the patients continued to be seen in individual therapy by residents, so that under these conditions it often appeared that one important function of the group was the preparation of patients to engage in individual therapy. This Ward Therapy Group seemed to remain in an almost perpetual first stage of development because of its turnover rate, a condition that largely dissipated when our former policy was modified to permit patients discharged from the ward to continue in the Ward Group for a period of three to four months after leaving the hospital. At the end of that period a decision would be made either to discharge them from the group therapy, or to transfer them to on-going out-patient groups. As other out-patient groups came into existence, the Ward Therapy Group was used as a funnel to facilitate the transfer of patients from hospital to out-patient status. Again, the Ward Group was utilized as an aspect of the undergraduate teaching program by arranging for a Senior medical student to participate as co-therapist for part of his clerkship experience. Many of these Senior students are seriously considering the feasibility of adapting the group therapy method to the needs of a modern general medical practice.

At their own request, generated by their interest in group therapy and by their curiosity as to what a group experience for their own benefit would be like, a Residents Group was formed. It was destined to be short lived. To begin with, the group had fewer than the optimum number of six to eight persons usually required to insure effective interaction among its members. It had four, plus the therapist. They were also close friends before coming together as a therapy group. One of the residents joined the enterprise rather reluctantly and more because the others wanted him than because of any enthusiasm on his part. Indeed, he was resistant to the idea of any kind of psychotherapy for himself, either individual or group. The others were particularly concerned about him, and some of their reasons for being so soon became clear.

The situation led to one of those rare instances when a therapy group becomes an action group. At one of the regular group sessions this same resident was absent. The group became increasingly worried as it discovered that he had not been seen for three days, was almost hopelessly behind in his

chart work, had been in one of his recurring despondent moods, and that he kept a collection of serviceable guns in his apartment. The group members all sensed an emergency. All thought too highly of the mission group member to stand idly by. So it was decided that they would look for him, as a group. It finally located him, and in a condition that confirmed their fears for his safety. The group literally took charge of him, brought him back to the hospital, and stayed with him throughout the night. Only after arrangements had been made the next day to place him under the care of a private psychiatrist of his own choice did the group feel free to leave him. He dropped out of the therapy group at this point. Subsequently he completed his residency training and opened a practice in another community.

Other psychotherapy groups began to make their appearance at the Medical Center. A resident who had been a member of the previous Residents' Group during his first year started an out-patient group of his own. A new psychologist on the staff organized another out-patient group, and a staff psychiatrist formed an Out-Patient Married Couples Group. Another former resident, given a faculty appointment after a two year term of military service, initiated Family Group Therapy in connection with his work with adolescents.

For some time it had seemed to us that psychiatry residents assigned to the in-patient service were missing a unique opportunity to see their patients together in groups. The two first-year residents assigned to the ward carried a patient load of from five to ten patients, depending upon the census. To be able to see their patients together briefly, but regularly, promised to offer at least two advantages to the residents—in group he could observe the patients' behavior not elicited in individual interviews, and he could also meet the nearly unanimous request of his patients to see their doctor at least once every day. Encouraged by a report from the Langley Porter Clinic (1963), and drawing upon their experience, we began to consider a similar undertaking. When the idea was tentatively broached to the two residents concerned they seemed to be open and receptive. There followed much careful planning. The need to inform and instruct all the staff, residents, nurses, and aides was fully recognized and a schedule of separate meetings was set up to do so. It was announced that meetings would be held first with the residents, then with the nurses, and

then with the aides to discuss the nature and operation of the proposed Residents' Ward Groups. Essentially, each resident was to meet with the patients already assigned to him, but he would meet them together in a group for half an hour, four mornings a week. It so happened that on the day the series of preparatory meetings were to be held, one of the residents was absent because of illness. Pressed for time, we decided to meet with the nurses, then with the aides as scheduled, and to meet with the residents later when both were present. When the resident did return after the weekend, the postponed meeting was held. Thus the meeting scheduled to be the first, turned out to be the last. The decision to proceed under these circumstances proved to be an error, and a fatal one. One of the two residents was an antagonistic, status-conscious person. She seized upon the fact that the residents' meeting was held last, even though she knew it was not intended that way, to become offended, indignant, and negative toward the project. The other resident was influenced by her openly expressed hostility. As a result they each met with their patient groups a few times, then discontinued. The undertaking failed. It may be worth noting that at the end of her first year the faculty rendered an unfavorable evaluation of this resident, largely because of her widespread hostility and negative attitudes, and she was not recommended for re-appointment.

The development of an increasing number of therapy groups and group therapists might lead one to anticipate that the need for a Study Group would emerge, and in fact it did. Two years ago, in response to a growing number of inquiries from people in other agencies, interested persons were invited to an exploratory meeting. About 26 persons attended. Most indicated a desire to learn about group therapy. At the next few meetings prepared talks of an introductory nature were presented, with time allowed after each presentation for discussion and interaction. A few persons, mostly those already engaged in group therapy and those who had attended the annual regional teaching institutes of the Southwestern Group Psychotherapy Society, began to press for a more subjective group experience at these meetings. As expected, attendance began to dwindle after the first few meetings. Those who remained were psychiatry residents from the University of Arkansas Medical Center, the VA Hospital, and from the State Hospital, a clinical psychology intern, and

clinical social workers. As the academic year drew to a close, the group found itself still grappling with commitment to the group goal, though there was no longer any doubt that the goal of an experimental type group had been established. At this point the Study Group recessed for the summer.

At the beginning of the next school year the Study Group resumed its meetings—but with a difference. Most of the people still attending when the Study Group recessed for the summer were back again. However, they returned largely as pairs, the two co-therapists of each of the three on-going out-patient therapy groups making six of the total. Two other persons, one of whom is engaged in family therapy, were invited to join the Study Group to give it better male-female balance. The group readily reached an agreement that it preferred to meet rather late in the evening on a weekday night. The group also relatively openly acknowledged that it was to be an experimental group. Then, to its own surprise, it at once found itself confronted with, and dealing with, resistances of various sorts. It also decided, after much discussion, to become a leaderless group. It remains so to this day. The group also discovered an important secondary goal—its activities were to be work relevant. This meant simply that the Study Group would be a place for therapists and co-therapists to examine the problems that arose between them as they worked together in their own patient groups.

We do not know what the future of this Study Group will be. Certainly we are beginning to learn from it. Two examples may convey something of its nature. The first occurred during Christmas week. All but one or two members of the Study Group were attending a party elsewhere that started right after work on the night of the regular group meeting. By 8 o'clock the party was in full swing and everybody was having a very good time. Nevertheless, when 8:30 came, each of the group members pulled away from the party, one by one, to find his way back to the usual group meeting room. Once there, they all began to wonder at themselves—why leave a good party to come to Study Group? And curiously, no one really regretted leaving the party even though they were having a wonderful time. The group members gradually became aware that they valued the genuine, meaningful relations that had developed within the group above the fun-filled, but essentially superficial and transitory relationships that

were developing at the party. The second example brought to awareness an unexpected characteristic of a leaderless group. For three or four weeks the group had seemed to be in the doldrums, just couldn't get going. Desultory attempts to deal with each other's resistances proved fruitless. One of the members, feeling suddenly overwhelmed by hopelessness and frustration, jumped up from her seat and prepared to leave the group. Nobody said a word. Almost to the door she stopped, turned around, and slowly returned to her seat. Why? She could leave the group on impulse as a patient, but whoever heard of a therapist walking out! By the time she had reached the door she realized that since this was a leaderless group each person shared equally the function and responsibility of therapist and leader, including herself. She could not divest herself of this responsibility. She had, therefore, to remain.

Summary

To summarize, as we look back over the development of the therapy group method in this setting, it seems to have evolved into a program

through a kind of natural selection to fit the changing environment. This program was not conceived at the onset, adopted, and then put into operation. Instead, the program has emerged from the experience of the years, gradually taking on structure and organization as it has grown. Certain of its adaptations have failed, others have succeeded and survived in full vigor. How it might be described ten years hence is hard to predict. Very likely there will be formal, organized teaching courses introduced shortly into the curriculum. Another possible development will be extension of the therapy group methods to the needs of a general medical practice, of particular local interest because the University of Arkansas Medical Center is primarily devoted to producing family physicians. What lies ahead for the program we do not know. We do know that it is alive, vigorous, and growing. It is here to stay.

REFERENCE

- Blacker, K. H. (1953). Group Psychotherapy in the Treatment of Acute Emotional Disorders. *International Journal of Group Psychotherapy*, 13:365-369.



Rate of Formation of C-21 Steroid Sulfates From 4-¹⁴C- Progesterone by Human Newborn Adrenal Slices

G. P. Klein and C. J. P. Giroud (Montreal Children's Hosp, Montreal) *Canad J Biochem* 44: 1005-1013 (July) 1966

Adrenal slices obtained from a premature infant were incubated in the presence of adenosine triphosphate and of progesterone labeled with radioactive carbon 14. The incorporation of this precursor into seven corticosteroids was studied as a function of the time of incubation. Radiochemical purity of the products was assessed by double isotope derivative assay. The results demonstrated the rapid synthesis of 11-deoxycorticosterone sulfate and of corticosterone and 11-deoxycortisol, followed by the slow disappearance of the latter two steroids and the progressive formation of their respective C-21 ester sulfates. The predominant reactions observed were 21-hydroxylation of progesterone followed by extensive sulf-conjugation of the product.

Hartmanella (Acanthameba)—Experimental Chronic Granulomatous Brain Infections Produced by New Isolated Low Virulence

C. G. Culbertson, P. W. Ensminger, and W. M. Overton (Lilly Research Laboratories, Indianapolis) *Amer J Clin Path* 46:305-314 (Sept) 1966

New strains of *Hartmanella* isolated from various sources have caused both acute and chronic brain disease after intranasal inoculation. The nasal infection from some strains may mimic other cytolytic lesions, such as those caused by virus infection. The chronic lesions are granulomas which contain trophozoites originally and later cysts of *Hartmanella*. These cysts stain poorly with the stains used routinely, but they do stain well with various stains for polysaccharides such as methenamine silver and luxolfast blue periodic acid Schiff. Gomori's chromium hematoxylin stain is also effective. These experimental findings constitute a basis for further studies of human nasal infections and also of various granulomas of the brain and possibly of the lung.

Ovarian Neoplasms in Childhood and Adolescence

M. R. Abell, M.D., Ph.D.*

Studies on testicular neoplasms from children and adolescents disclosed certain prominent differences in structure and behavior from those encountered in adults.^{1, 2, 3} It seemed logical to assess next the ovarian neoplasms from patients in the same age bracket and to compare them with testicular lesions from young patients and also with ovarian neoplasms from adults. This was accordingly done,^{4, 5} but not simply because of an interest in their basic structure and pathogenesis, but because a thorough understanding of their natural history and behavior is absolutely essential to the clinical management.

In these young patients it is important that, whenever possible, ovarian tissue and uterus be conserved to ensure future development and realization of childbearing potential, but for certain malignant neoplasms, it may be necessary to sacrifice these in an aggressive eradication in order to preserve life. A further stimulus to our study was the paucity of accurate information in the literature.

Classification of Ovarian Neoplasms

The most logical approach to the classification of ovarian neoplasms is that based on our present day knowledge of the development and structure of the ovary.⁶ Such a histogenetic classification is basically simple but allows easy expansion to include all known entities. In it there are four basic categories of neoplasms (Table I). The germ cell

adenofibromas, and carcinomas in which the epithelial components are tubal (serous), endocervical (mucinous), endometrial (endometrioid), urothelial (Brenner tumors), or occasionally a mixture of two or more of these types of cells. In the category of specialized gonadal stromal neoplasms are included all lesions that arise from sex cord cells and sex mesenchyme. Commonly they exert a hormonal activity. The last category is a heterogeneous group of neoplasms that arise from non-specialized stroma which the ovary has in common with other viscera or from heterotopic elements in the hilum. There may be justification for adding a fifth category of extremely rare and still somewhat debatable neoplasms under the heading of mixed gonadal stroma and germ cell neoplasms (gonadoblastoma), but at present these lesions have not been accurately defined.

Material and Observations

During a period of about 40 years, 188 neoplasms from 182 patients up to, and including those 19 years of age were studied.^{4, 5} Thirty-five (19 per cent) of these occurred in premenarchal children. The total group accounted for nine per cent of all ovarian neoplasms seen in our department during this period.

A comparison of the four major categories of ovarian neoplasms, according to certain age brackets, is made in Table II. The germ cell neoplasms comprised 59 per cent of all ovarian neoplasms in

TABLE I

Histogenetic Categories of Ovarian Neoplasms

- I. Neoplasms of germ cell origin.
- II. Neoplasms of specialized gonadal stroma.
- III. Neoplasms derived from coelomic epithelium and its derivatives.
- IV. Neoplasms of non-specialized gonadal stroma and heterotopic elements.

category includes all neoplasms thought to be derived from the germ cells that migrate during development to the gonads from the yolk sac of the entoderm. The neoplasms that arise from the coelomic (germinal) epithelium and its derivatives simulate in structure the different epithelia of paramesonephric (Mullerian) system and lower urinary tract. They consist of cystadenomas,

TABLE II

Ovarian Neoplasms According to Age Groups

Histogenetic Group	Children and Adolescents (up to 20 yrs. of age)		Adulthood (20 yrs. up to 50 yrs.)		Patients 50 years of Age and More	
	No. of Patients	Percent of Group	No. of Patients	Percent of Group	No. of Patients	Percent of Group
Germ Cell	107	59	156	14	35	6
Specialized Gonadal Stroma	14	8	57	5	20	4
Coelomic Epithelium	53	29	817	71	456	81
Non-Specialized Stroma and Heterotopic Elements	8	4	111	10	53	9
TOTALS	182	100	1,141	100	564	100

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childhood and adolescence compared with 14 per

cent in adults 20 to 50 years of age, and six per cent in women 50 years of age and over. Before menarche, 31 of 35 neoplasms (90 per cent) were of germ cell origin. Neoplasms of coelomic epithelium and its derivatives formed a much smaller per cent of lesions for this period than they did from 20 to 50 years of age and thereafter, 29 per cent as compared with 71 per cent and 81 per cent. The relative percentage of specialized gonadal stromal tumors did not fluctuate much during the three age periods, varying only from eight to four per cent. Neoplasms of non-specialized gonadal stroma increased in relative frequency after 20 years of age.

Neoplasms of Germ Cell Origin

One hundred and seven patients in the study had germ cell neoplasms and in six of these there were bilateral autochthonous primary lesions.^{4, 5} The structural types of lesions and the numbers

TABLE III
 Neoplasms of Germ Cell Origin from Children and Adolescents

	No. of Patients	Percent of Total Number
Germinoma (dysgerminoma)	11	6
Embryonal Teratoma (carcinoma)	9	5
Partially Differentiated Teratoma	13	7
Mature Teratoma	66*	36
Mixed Germ Cell Neoplasms (teratocarcinoma)	8	4
TOTALS	107	59

*In six patients there were primary synchronous or asynchronous neoplasms in the second ovary.

of the different types are given in Table III. Structurally these neoplasms are identical with those seen in the testis, thymus gland, pineal gland, optic, chiasma, and retroperitoneum. In females, however, a much greater proportion of benign lesions are encountered, whereas in the male, benign germ cell neoplasms (teratomas) of testis are rare.

Germinomas (Dysgerminomas):

These neoplasms are thought to arise from undifferentiated germ cells that do not have or have lost their ability to differentiate. They are undifferentiated appearing lesions that are very radio-sensitive.

In our material there were 11 pure germinomas in girls eight to 19 years of age; two patients were premenarchial. The presenting symptoms are usually abdominal enlargement with some lower abdominal discomfort or soreness. Pregnancy is often suspected. In the occasional patient, severe pain may focus attention on the lesion due to torsion of the pedicle and infarction. In a few

patients amenorrhea may appear with mild masculinizing signs but the neoplasm is not generally considered to be hormonally active.

Table IV
 Survival Information for Patients with Malignant Germ Cell Neoplasms*

Type of Neoplasm	No. of Patients	No. of Patients Qualifying	No. of Patients Alive	No. of Patients Dead
Germinoma	11	10	9 (1½-31 yrs.)	1 (28 mos.)
Embryonal teratoma	9	8	0	8 (0-14 mos.)
Partially differentiated teratoma	13	12	9 (1½-18 yrs.)	3 (7, 10, 15 mos.)
Teratocarcinoma (mixed germ cell neoplasms)	8	8	0	8 (1-14 mos.)
TOTALS	41	38	18	20

*Modified from Table VIII, *Am. J. Obst. & Gynec.* 92:1078, 1965.

All of the neoplasms that we studied were pure germinomas and unilateral. They varied from eight to 21 cm. in greatest diameter. Their capsules were smooth and the cut surfaces homogeneous pinkish-grey and soft with areas of necrosis and hemorrhage in some. Metastases were demonstrated in the pelvis and regional lymph nodes in two of our patients.

The neoplastic cells are polygonal or rounded, uniform in appearance, with pale eosinophilic or vacuolated cytoplasm and moderately chromatic nuclei. Division figures are present but not numerous. The cells are arranged in anastomosing masses, sheets and cords separated by fibrous septae that contain varying numbers of lymphocytes. In some neoplasms there are also characteristic histiocytic granulomas with Langhan's giant cells. Occasionally the opposite ovary may be dysgenetic.

Nine of ten patients on whom we have survival information are alive and free of disease from one and one-half to 31 years after treatment; the tenth died of metastatic disease after 28 months. Eight of these were treated by unilateral salpingo-oophorectomy and four have subsequently had normal pregnancies. One had metastases to the pelvis and regional lymph nodes and received irradiation therapy after extensive pelvic surgery. She is alive and free of disease six years after diagnosis.

Embryonal Teratomas (Carcinomas):

These neoplasms arise from multipotential germ cells that possess the ability to differentiate along somatic and sometimes trophoblastic lines. They are part of a spectrum of teratomatous lesions but extremely undifferentiated and thus embryonic in histologic appearance.¹⁴ Experimental work with the embryonal teratoma from

testis proves its teratomatous nature and its ability under appropriate conditions to differentiate with the formation of various mature and near mature somatic lesions.^{9, 10, 11, 12} In the past this lesion in the ovary has been called Schiller's mesonephroma and an incorrect origin from mesonephric elements assigned to it. Teilum⁷ refers to it as an entodermal sinus tumor and variants of it have been called polyembryonic embryoma.⁸

There were nine patients in our series with histologically pure embryonal teratomas; two were infants under one year of age, and the others ranged from ten to 19 years of age. Four patients were premenarchal. In the infants, the presenting findings were abdominal masses. In the others the initial complaint was usually fairly severe pain of short duration with some enlargement of the abdomen. In contrast to patients with germi-nomas, pregnancy was not usually suspected, the clinical picture being more suggestive of a rapidly growing neoplasm. Eight of the patients had peritoneal implants and/or hemorrhagic ascites on initial celiotomy or at second look procedures shortly thereafter.

These neoplasms are nodular, soft, and fracture readily. On section they have a variegated appearance with yellow, grey, hemorrhagic and gelatinous areas. Microscopically they consist of a loose medullary meshwork of fairly large undifferentiated cells that have pale or vacuolated cytoplasm. Division figures are frequent and hyaline globules are common. Various patterns of growth are seen including papillary, trabecular, glandular and microcystic. In some areas there is abundant glycogen, in others considerable lipid. The hallmark of these neoplasms which reflects their teratomatous nature is the presence of clusters of small darker cells oriented about vessels called embryoid bodies, scattered tubule formations, and more solid areas of elongated cells that are suggestive of an immature mesenchyme.

Eight of the nine patients with this neoplasm that were followed died of recurrent and metastatic disease after an average period from diagnosis of six months. Several patients had radical surgery, followed by irradiation therapy and in two instances also chemotherapy, but the disease pursued a progressive course and metastasized by lymphatic and blood vessels, and by peritoneal implantation.

Partially Differentiated (Malignant) Teratomas:

These neoplasms may be viewed as embryonal

teratomas in which differentiation of elements has proceeded to the point that fetal appearing tissues of various types are easily identified. Because the tissues are only partially differentiated, they possess many of the cytological characteristics of cancer and at least some have malignant potential. Residual, small foci with the pattern of embryonal teratoma are sometimes present. Even within this designated category there is variation in the degree of maturity and the more mature lesions have a better prognosis than the immature lesions.¹³

The presenting symptoms are usually abdominal discomfort and the presence of a pelvic mass. Severe pain is unusual. They are generally large neoplasms, bosselated, but with smooth, outer surfaces. In the more aggressive lesions, nodules of neoplasms may have penetrated the capsule to involve its surface and the adjacent peritoneum. When opened the tumors are partially cystic with a variety of tissues of different color and consistency attesting to their teratomatous nature.

Histologically, elements of the three germ layers are usually present with various types of epithelium and mesenchymal elements being represented. Cartilage, bone and glial tissue are often prominent. Squamous, respiratory, intestinal, and neural epithelial structures are common. The less well differentiated areas are cellular with hyperchromatic nuclei and division figures. Small foci of embryonal teratoma may be found.

In our series, 12 patients with these neoplasms have been kept under surveillance and nine of these are alive and well one and one-half to 18 years after treatment. The deaths of three patients were due to peritoneal and disseminated metastases. The neoplasms in these three patients were less well differentiated than those in other patients.

Mature Teratomas (Benign Cystic Teratomas; Dermoid Cysts):

These lesions are thought to arise from multipotential germ cells by processes of neoplasia and differentiation. All elements that are present are mature in appearance and the three different germ layers are usually represented. The majority of these neoplasms are cystic with one or more of the cysts being lined by skin but, in children particularly, the cysts may be lined by other components such as neural, respiratory or intestinal epithelium.

We studied 66 patients in this age group with

mature teratomas and in six patients there were bilateral tumors. The ages ranged from three months to 19 years with 16 patients being premenarchial. Symptoms were rarely prominent, and in at least one-half of the patients were negligible or absent. A few lesions were detected on routine physical examination or on roentgenograms.

The neoplasms are lobulated, heavy and vary from several centimeters to 25 cm. or more in diameter. There is usually one large cyst lined by skin with appendages and often several smaller cysts. The main cysts generally contain sebaceous material and have one or more dermal papillae that project into the cysts and in these regions the various other tissues are found. Bone, teeth, cartilage, thyroid gland and adipose tissue may be discernible grossly.

Nearly all tumors contain skin, with appendages and underlying sub-cutaneous adipose tissue. Neuroglia is commonly present and, by itself or along with neuroepithelium, may form the lining of some cysts. Cartilage, bone, and respiratory epithelium are also common. A variety of other epithelial and mesenchymal structures may be present but no splenic, renal, adrenal, hepatic, pancreatic, cardiac or gonadal tissues are generally seen. Areas of fat necrosis with foreign body reaction and dystrophic calcification of neuroglia are common retrogressive changes.

Teratocarcinomas (Mixed Germ Cell Neoplasms):

Friedman and Moore¹⁵ applied this term to germ cell neoplasms in which a combination of two or more of the patterns of growth already described were present. Embryonal teratoma is usually one of the components in these tumors and it is not uncommon to find germinomatous and sometimes choriocarcinomatous areas.

These neoplasms are large and partially cystic when discovered. The cut surfaces reveal tissues of various colors and consistencies that indicate their teratomatous nature. Areas of hemorrhage and necrosis are common. Histologically, areas of embryonal teratoma are nearly always present along with partially differentiated teratoma, germinoma, and sometimes choriocarcinoma.

Eight patients with this neoplasm that we studied died of recurrent and metastatic disease within a matter of a few months of diagnosis irrespective of the type of treatment. They thus reacted in a

manner similar to those with pure embryonal teratoma.

Neoplasms of Specialized Gonadal Stroma

In this category we include all neoplasms that are thought to arise from the specialized cortical and hilar mesenchyme and from remnants of the sex cords. If the neoplasms consist of tissues or produce structures resembling those in the normal ovary, they are placed in the granulosa-theca group, but if the structures resemble elements normally seen in the testis, they belong to the Sertoli-Leydig group. The latter lesions often appear to arise in the hilum of the ovary, whereas the others are intraovarian and sometimes preceded by hyperplasia of the parent tissues. Both groups of neoplasms are interesting because of their ability to produce sex hormones which may cause considerable alteration in body habitus. The assignment of a neoplasm to one or the other group does not indicate, however, that the hormonal effects will be either masculinizing or feminizing, for either change may be brought about by certain neoplasms within both groups.

Most gonadal stromal neoplasms can be accurately designated as to cell type but a few may be insufficiently differentiated to allow accurate classification and a more specific designation than

TABLE V
*Neoplasms of Non-Germ Cell Origin from
Children and Adolescents*

	No. of Neoplasms	Percent of Total Ovarian Cases
I. <i>Neoplasms of Specialized Gonadal Stroma</i>	14	8
A. <i>Granulosa-theca cell neoplasms</i>	8	
Granulosa cell (folliculoma)	3	
Thecal cell (thecoma)	3	
Thecogranulosa cell	2	
B. <i>Sertoli-Leydig Cell neoplasms</i>	6	
Sertoli cell (androblastoma)	3	
Leydig cell	0	
Sertoli-Leydig (arrhenoblastoma)	3	
II. <i>Neoplasms of Coelomic Epithelium and Its Derivatives</i>	53	29
Serous (tubal)	34	
Mucinous (cervical) cell type	19	
III. <i>Neoplasms of Non-Specialized Gonadal Stroma</i>	8	4
Fibroma	3	
Supportive tissue sarcoma	3	
Malignant lymphoma	2	
TOTAL	75	41

a specialized gonadal stromal neoplasm cannot be given. The majority of the neoplasms in this histogenetic group are benign and those that are malignant do not behave as aggressively as the usual ovarian carcinomas.

We encountered fourteen neoplasms of specialized gonadal stromal origin in the first two decades of life (Table V). Eight of these were granulosa-theca neoplasms and six were Sertoli-Leydig neoplasms. Together they comprised eight per cent of all ovarian neoplasms for the age period studied.

Granulosa-Theca Neoplasms:

In this group there are granulosa cell tumors, thecomas, and mixed thecogranulosa tumors. Granulosa cell neoplasms consist of epithelial cells that assume various follicular, trabecular, and adenomatoid patterns of growth. Grossly they are either cystic or relatively solid and often have a distinct yellow appearance. The thecomas are solid neoplasms and consist of plump spindled cells with pale vacuolated cytoplasm containing lipids. In the mixed neoplasms both components are prominent. All of these types of tumors commonly produce estrogens but the thecomas particularly if there are luteinized areas, may be the cause of masculinization and a progesterone effect on the endometrium with the formation of decidua.

Eight patients in our series had granulosa-theca neoplasms; three were granulosa cell tumors; three were pure thecomas and two were mixtures of granulosa and theca cells. The ages of the patients ranged from 13 to 19 years and all were post-menarchial. The presenting complaints in most instances were hyper- and polymenorrhea which led to discovery of pelvic masses. Two patients had ascites.

Seven of the eight neoplasms were histologically benign and behaved so clinically. One granulosa cell neoplasm was obviously malignant and caused death of the patient from peritoneal metastases three months after diagnosis.

Sertoli-Leydig Neoplasms:

There are three neoplasms in this group; pure Sertoli cell tumor, pure Leydig (hilus) cell tumor, and a mixed Sertoli-Leydig cell neoplasm, generally termed arrhenoblastoma. The Leydig cell tumor and the arrhenoblastoma commonly exert a masculinizing effect, but the Sertoli cell tumor and rarely the arrhenoblastoma may have a feminizing action.

Six neoplasms that we have studied were in this group: three were pure Sertoli cell tumors and three were arrhenoblastomas. There were no pure Leydig cell neoplasms. The three Sertoli cell tumors occurred in children three, seven, and eight years of age, and the symptoms in the younger two patients were precocious development with enlargement of breasts, growths of pubic hair, and slight vaginal bleeding. The neoplasms were solid, and yellow. Histologically two showed well defined, tubular structures reminiscent of structures seen in Sertoli cell tumors of the testis. The third neoplasm was less well differentiated but benign and contained lipid, although no clinical evidence of estrogen stimulation was present.

The three arrhenoblastomas occurred after menarche in girls 14, 18, and 19 years of age. All manifested clinical signs of masculinization in the nature of hirsutism, deepening of voice, and amenorrhea that regressed after removal of the lesions. Histologically they consisted of tubular formations of Sertoli cells, interposed groups of eosinophilic Leydig cells, and some non-differentiated stroma.

All lesions in this category were considered to be histologically benign and have behaved so clinically after unilateral salpingo-oophorectomies. Two patients from whom arrhenoblastomas were removed have since had normal pregnancies.

Neoplasms of Coelomic Epithelium and Its Derivatives

In adults neoplasms of coelomic epithelium and its derivatives comprise 70 to 80 per cent of all ovarian neoplasms whereas in children and adolescents they contribute but 29 per cent. Although attention is focused primarily on the type of epithelium present, serous (tubal), mucinous (cervical), endometrial (endometrioid), and urothelial (Brenner), cortical stroma participates to varying extents and may form the greater mass of tissue as seen in the adenofibromas. Usually the stroma is hormonally inert but on occasions it may be responsible for clinical signs of excessive estrogenic activity and rarely masculinization. The pathogenesis of these neoplasms is related in some way to ovarian function as they do not occur before menarche. The proportion of malignant neoplasms in this category increases considerably with increased age of patients.

In our material there were 53 neoplasms of coelomic epithelial origin in children and adolescents; 34 were of serous (tubal) cell type and 19



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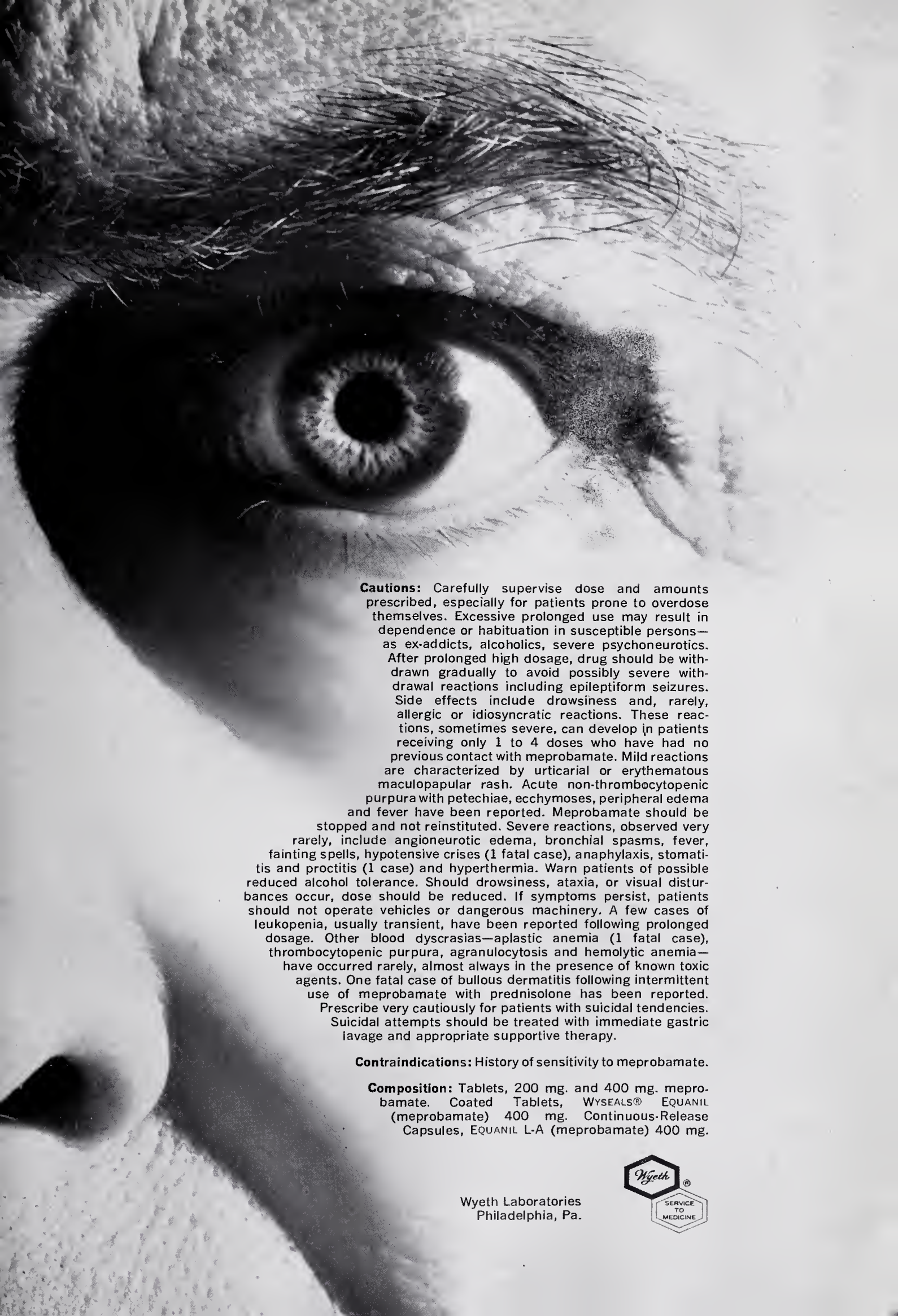
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of mucinous (cervical) cell type. There were no neoplasms in which the epithelium was of endometrial type and there were no Brenner tumors.

The initial complaints are generally the presence of enlarging abdominal masses with some discomfort and in a few instances severe pain. At this age nearly all neoplasms are unilateral and generally multiloculated. Carcinomatous changes in these neoplasms are considerably less frequent than later in life and in our material only *four examples* were encountered and these were not particularly anaplastic. Two patients are alive and well several years after the removal of the carcinomas and two died of recurrent and metastatic cancer.

Neoplasms of Non-Specific Stroma and Heterotopic Elements

This category encompasses a heterogeneous collection of neoplasms, both benign and malignant that arise from supportive and vascular tissues and heterotopic mesonephric, and adrenal elements. The latter lesions are essentially restricted to adults. Fibroma is by far the most common neoplasm in the group and the majority occur in older women. Also included in this category are the rare examples of malignant lymphomas which present, at least, as primary ovarian lesions, usually bilateral.

There were eight neoplasms in this category encountered in children and adults; three fibromas, three supportive tissue sarcomas, and two malignant lymphomas. All but one tumor occurred in post-menarchial girls. Pain was the usual presenting complaint that led to the recognition of the neoplasms. Two patients with sarcomas died one and five years after diagnoses; the third patient was lost to follow-up.

The two patients with lymphomas died of systemic disease, one and two months after removal of the ovarian masses. These were reticulum cell sarcomas, identical histologically with neoplasms that are prevalent in certain parts of Africa and are often termed, "African lymphoma."^{16, 17}

Summary

The majority of ovarian neoplasms that occur in children and adolescents are of germ cell origin. In our material they accounted for 59 per cent of the neoplasms in these young patients as compared to 11 per cent in adults. Before puberty approximately 90 per cent of the neoplasms are of germ cell derivation and roughly one-half of

them are malignant. Neoplasms that arise from the coelomic epithelium and its derivatives, the cystadenomatous tumors, are next in frequency but are not near as important in these young patients as they are in adults. They comprise about 30 per cent of the neoplasms in children and adolescents whereas in adults they make up 75 per cent of all neoplasms. In our material none of these tumors occurred before puberty. Neoplasms of specialized and non-specialized gonadal stroma account for only small percentages of neoplasms at all periods of life.

The same histological types of germ cell neoplasms are encountered in ovary as occur in testis and certain extragonadal sites. Mature (benign) teratomas are considerably more common in females than in males but the reverse is true for malignant germ cell neoplasms. The germinoma (dysgerminoma) is an undifferentiated but very radiosensitive neoplasm which does not carry the poor prognosis once thought. Only one of ten patients that we studied with this neoplasm and for whom we had survival information died of the disease. In contrast to this behavior is that of embryonal teratomas and teratocarcinomas with embryonal areas. These neoplasms caused death in all patients in a matter of a few months, irrespective of the types of therapy employed. The prognosis is relatively good for patients with partially differentiated teratomas. There is thus a spectrum of teratomatous neoplasms that vary from the wildly aggressive embryonal teratoma to the mature benign teratoma. The prognosis is dictated by the degree of maturity.

In young patients, neoplasms of coelomic origin occur after menarche and are usually unilateral and benign. We encountered only four carcinomas in 53 neoplasms in this category and they were not anaplastic. Later in life nearly 50 per cent of the coelomic epithelial neoplasms are malignant. Most cystadenomatous tumors in young patients are of serous (tubal) cell type and the rest are of mucinous (cervical) cell type.

Neoplasms of specialized gonadal stromal origin are interesting because of the clinical manifestations of abnormal hormonal production that they frequently produce. The majority of neoplasms are benign and those that are malignant are not overly aggressive. The granulosa theca cell neoplasms generally cause signs indicative of excessive estrogen production. Sertoli cell tumors that appear before puberty also give such evidence

with precocious development without masculinization. The mixed Sertoli-Leydig cell neoplasms (arrhenoblastomas) usually appear after menarche and cause masculinization.

Fibromas, supportive tissue sarcomas, and malignant lymphomas that present clinically as primary ovarian neoplasms, comprise the most common types of neoplasms that arise from non-specialized gonadal stroma.

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Behavioral Correlates of the Guessing Game

J. Cohler et al (74 Fenwood, Boston) *Arch Gen Psychiat* 15: 279-287 (Sept) 1966

An active drug (thioridazine), an active placebo (phenobarbital and atropine sulfate), and an inactive placebo (lactose) were tested in a double-blind drug study with two groups of randomly selected chronic schizophrenics. Five comparisons of the three substances were made over a two-year period. Thioridazine significantly reduced patient disturbance. The active placebo did insure objectivity in the early phases of the study. An unforeseen result of the study, the judges' failure to perceive a change from the active placebo to inactive placebo in the nondrug group, may be explained by four perceptual-cognitive factors: set to respond on the basis of past experience, reinforcement of set, halo effect, and contrast phenomena (stable versus changing behavior patterns).

Chronic Allergic Neuropathy in the Rabbit

A. L. Sherwin (3801 University St, Montreal) *Arch Neurol* 15:289-293 (Sept) 1966

A chronic form of allergic neuropathy was produced in rabbits by repeated immunization with human or bovine sciatic nerve mixed with Freund's adjuvant. The clinical features varied in intensity and localization in different animals and at different times in the same animal. The animals' clinical course resembled certain human polyneuropathies. No evidence of hypertrophic changes in the peripheral nerves was found. Individually teased-out peripheral nerve fibers were stained with osmium tetroxide. Isolated nerve fibers from animals with chronic neuropathy, or those which had recovered from polyneuropathy of several months' duration, revealed many segments with shortened internodal distances and evidence of segmental demyelination and partial remyelination.

First Symposium on Immunization

Wilbur G. Lawson, M.D.*

This is a report concerning the first Symposium on Immunization held in the Communicable Disease Center in Atlanta, Georgia, Monday, October 17, 1966. This symposium was convened by the American Medical Association, in cooperation with Communicable Disease Center, U.S. Public Health Service, and is intended to be an annual affair. It was a most productive meeting in that while I went armed with a considerable list of complaints and criticisms of current day procedural schedule, I found that others are sympathetic to these problems and can be talked to in a constructive manner. Such an event should in time serve to reduce the confusion in dosage schedules that I feel is such a big factor in poor immunization coverage by our practitioners. It was stimulating to see members of several authoritative organizations standing up arguing jaw-to-jaw and then finding a common meeting of the minds. Everyone I mentioned to about our proposed placard was enthusiastic and wanted to hear more in future meetings about its success.

Diphtheria and Tetanus antigen is now thought to be so effective that 10 yr. intervals on adult boosters are thought adequate. However, in the case of a threatening injury, they regard the "magic interval" to be one year beyond which you would boost, below which you would depend on the previous booster. It was emphasized that over-immunization in this field is undesirable, and particularly the "habit of thumb" of giving an annual pre-camp booster is completely unwarranted.

Two-hundred-fifty units of human tetanus antitoxin and a simultaneous dose of toxoid was recommended for the unimmunized person who is afflicted with a dirty wound. The so-called rapid immunization procedures accomplish no more than the standard schedule and "must be shelved".

In the field of measles immunization, there is no place now for the use of inactivated measles vaccine. After 18 mos. it can be considered ineffective and they are collecting more and more cases of mysterious, and sometime serious, reactions to live virus in children who have been previously immunized with the inactivated material. This includes, sometimes as late as 6 mos. later, the development of tender, hot, vesiculated lesions at the site of the live vaccine injection with

regional lymphadenopathy, petechiae, both at site and in remote areas and some cases of hypertrophy of the arm which the live material was given.

It is thought both safe and effective to administer live virus vaccines simultaneously. It is not thought wise to give them at broken intervals within a close period of time since there is a rise in the Interferon blood level that nullifies the vaccine given last. Therefore the live vaccines should either be given at the same time or at a considerable time apart. They are likewise discouraged in severe chronic illness, current or recent steroid therapy, on people who are receiving antimetabolite such as Methotrexate, irradiation therapy, pregnancy, or untreated active tuberculosis.

It is now thought that oral polio is not only more effective but dependable for a longer period of time, and virtually replaces Salk Vaccine. It was recommended that the Trivalent material be used, giving it with the first and third DPT at the second and fourth month—repeated one year later, and the fourth dose given at a convenient interval such as before entering school. If ever in doubt about the number or type of monovalent material doses, it is suggested they begin at the beginning with Trivalent material.

We apparently have no fear of the health service discontinuing routine smallpox immunization as has been favored by a limited group in Colorado. Actually, a great number of cases were recognized in Great Britain and Sweden last year and even in the best facilities that state-managed hospitals could provide, the mortality rate in Sweden was still 40%. The place of thiosemicarbazones is still uncertain and the side effects of nausea and vomiting are still a real problem.

Influenza vaccine is still not effective in reducing mortality rates or absenteeism in industry in the actively employed and younger. It is still considered to approximately halve the morbidity and mortality in the elderly, and is still being recommended for that group. A major epidemic is not predicted for this winter.

The use of gamma globulin in the prevention of rubella in pregnant women is said to be questionable and controversial. Since it is well proven now that there is rubella virus in the oral secretions in patients developing rubella, for seven to

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seventeen days before eruption and two weeks afterward, it is likely that there are more active exposures unknown than to known cases. The current status of Meyers Vaccine indicates that it is 90% plus effective with no spread of virulent viruses even though it is a live virus vaccine.

One of the principle purposes of this meeting was to encourage, in fact almost demand, that we take positive responsibility toward eradicating red measles from the United States so that the decks would be cleared for all out attack on German Measles in 1971. It is anticipated that it will be that long before the governmental licensing procedure would be satisfied. This is a matter with which I must spend considerably more time yet developing and detailing so that we can produce some sort of coordinated attack in the state of Arkansas.

Controversy had arisen about the possibility of Coxsackie virus infections producing an interference with Trivalent oral vaccine immunization. It was stated that this would *not* interfere with successful immunization.

Typhoid also is not, by public health service standards, eradicated, nor to be ignored, as has been recommended by our parent Academy of Pediatrics. It was stressed that decisions regarding such matters are still best left to the more pertinent decisions of local leaders in medicine rather than on a broad national scale. This I was particularly happy to hear them say.

We are going to have to increase the responsibility of immunity for our private patients and maintain leadership or we can certainly plan on losing this role in patient care to governmental control. We are dealing with "human beings" that can be worked with, but who are at the same time very strong minded about what can and should be done, and who in their own positions hold the power to see that it is done if we do not. If each of our active practicing physicians in Arkansas maintained their proper attentiveness to active immunization, there would be no call for mass immunization clinics such as we are to be faced with in the near future.



Total Body Water and Solids in 6- to 7-Year-Old Children: Differences Between the Sexes

L. P. Novak (University of Minnesota, Minneapolis) *Pediatrics* 38:483-489 (Sept) 1966

Total body water was determined by the deuterium oxide dilution method in 39 boys and 25 girls, aged 6 through 7 years. Total body solids were obtained by subtracting total body water from body weight. Total body water of the boys was higher by 1.63 liters and by 3.75% than total water, expressed either in absolute or relative values, of the girls. These differences between the sexes were significant. The absolute quantity of body solids was higher in the girls by 0.44 kg. This difference was statistically insignificant. Body solids, expressed as a percentage of body weight, were found to be higher by 3.75% in the girls, a difference which was statistically significant. The significantly higher amounts of body water in the boys were probably due to the lower content of body fat, as it was estimated by the results of five-skinfold measurements.

Clinical Course of Angina Pectoris

J. E. F. Riseman (16 Hawes St, Brookline, Mass) *Amer J Med Sci* 252:146-158 (Aug) 1966

The severity of angina pectoris was evaluated at weekly intervals in 122 patients for 6 months to 16½ years. Shorter periods were excluded because of variability during the early months of observation. Remissions occurred 98 times in 66 patients; in 52 patients they occurred spontaneously; in 37 they apparently resulted from various medications, and recurred more frequently in patients who showed a marked response to nitroglycerin, but could not be predicted exactly. Frequency of remissions make it possible to treat the patients with optimism; during studies evaluation response to specific therapy should be kept in mind, especially during the first six months of observation. Exacerbations occurred 33 times in 25 patients; conservative failure was usually in onset and temporary in duration; diabetes, intermittent claudication, cerebrovascular accidents, and senile psychoses were also frequent complications.

Report on Health, Education and Welfare Meeting

By Neil Crow, M.D.*

The observations, along with some personal impressions, were derived from the first Regional Workshop held in any part of the country by the Social Security Administration and its Health Insurance Program, including the parties involved in Medicare. The meeting was held in Dallas, September 28th, and the subject of hospital-based physicians was thoroughly discussed. Members of the Bureau of Health Insurance, regional offices in Dallas and Baltimore, were present in large numbers. The Hospital Associations of New Mexico, Oklahoma, Texas, and Louisiana were represented. The very active Arkansas Hospital Association was not represented, which attests to the fact that we appear to be working out our own problems. Intermediary carriers from Arkansas and the above states were present. Louisiana and Oklahoma had representation from both Part A and Part B carriers, which are not one and the same in these states. Arkansas Blue Cross-Blue Shield was well represented, and the impression was obtained that we are in better shape as far as intermediary representation than any of the states participating. It appears that Arkansas BC-BS handling of Medicare cases thus far is well ahead of our surrounding states.

The opening talk was given by Mr. Harris Berman, who is Mr. Hess' right hand man and is the number one man in the Baltimore office. Mr. Berman discussed the "unique" provisions of the Act, and stated that SSA had studied for several years the basic plan, which is Part A, but the physician reimbursement part was "snuk in" and breezed through by Mr. Mills without the SSA having been able to put several years of study into this part of the Act. The inference here seemed to be that the start-up phases of Medicare would have been smoother had the SSA had the opportunity to establish their guidelines prior to enactment of the law.

The interim principles of reimbursement to implement the Medicare Act are in final stages of review (subsequent conversation seemed to indicate they were probably at the printers) before becoming published regulations. These were reviewed briefly as follows:

- (1) It is not the function of HIP to establish arrangements between the hospital-based spe-

cialists and the hospital (later discussion left me in doubt about how closely this is adhered to).

- (2) The law requires that the hospital be reimbursed by cost through Part A and the professional fee be reimbursed out of Part B.
- (3) Service rendered the patient, for which reimbursement from Part B is to be granted, be an identifiable *physician* service to the patient. Interpretation of x-ray films was clearly established as an identifiable service to the patient.
- (4) Any agreement will, if reasonable, be honored (I believe this is any agreement between the hospital and the physicians involved).
- (5) Any other equitable method of remuneration of professional income will be honored if approved by the carrier (I believe this primarily is aimed at the "uniform percentage" reimbursement the pathologists are using).
- (6) If the physician bears expense, such as for separate billing, the additional cost for this expense will be honored by HIP. Discussion seems to indicate that HIP considers the expense to either occur on the hospital or the physician, should he bill separately, and will be honored at either place (not both places).
- (7) Hospitals and physicians (accepting assignment) will keep adequate records and furnish data necessary to substantiate any agreement, if so requested.
- (8) The hospital and physician can dispose of income as they see fit if both parties agree.

Mr. Berman stated that the new regulations will be in greater detail indicating to which situations the regulations will apply. It was strongly inferred that the use of per diem method will be made an available option to the hospitals. This was quoted as being similar to the per diem method used in government hospitals or some of the group coverage hospitals, such as operated by labor unions, in which a flat rate will be paid the hospital to include all services.

The new regulations also apparently will spell out what hospital-based physicians are. Specifically, any physician on a contract to perform medical care to an emergency room population or a nursing home will be considered hospital-based physicians for the purposes of calculating a way of re-

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muneration on Medicare patients. This concept of hospital-based physician will be new to most Southwest hospitals.

Mr. Berman emphasized very strongly that the intermediary carriers should accept on a temporary basis any fee schedule submitted, whether there is separate billing by the interested party or joint hospital-physician arrangement, that appears reasonable until final details are worked out. Apparently, no payments in Oklahoma or Louisiana have been made in the fields relating to hospital-based specialists, including the internists reading electrocardiograms.

Neither the hospital nor the physician may have sufficient experience to establish a fully compatible fee schedule (a nice way of saying that they could not get together and keep the charge relatively the same as when a single charge was rendered for laboratory or x-ray), and the carrier should accept, on a temporary basis, any reasonable schedule and commence payments. The statement was made "if something doesn't happen soon in some areas, the SSA is afraid it will hit the papers with adverse publicity".

The SSA has issued an intermediary letter to the Part A intermediary indicating they must review and approve the reasonableness of charges or agreement between the hospital and physician where separate billing is used. The report of this review is to be sent to the Part B carrier, who reviews the reasonableness of the Part B or professional charge and commences payment. Apparently, this step has caused the delay in the states having two different intermediaries for Part A and Part B, due to lack of communication between the two intermediaries.

The Louisiana group brought up for discussion the application of the American College of Radiology relative value scale, and the SSA people said it was not necessarily appropriate. The ACR scale could be appropriate if proper conversion factors were used, but the Louisiana delegation felt that a 2.5 multiplication factor across the board was not appropriate. They were instructed that this could or could not be accepted, depending upon the local conditions, but it was not necessary that they do accept this as a final professional fee schedule.

The SSA people reiterated that the hospital will not profit from lab or x-ray on Medicare patients, but they could charge Medicare patients as well as their private patients whatever they

wished. The SSA had no intention of interfering with the profitable operation on non-Medicare patients, and at the time of audit, over payments will be corrected to cover the cost plus 2% on the department's operation in regards to Medicare patients.

The SSA said the former combined single charge for x-ray, lab, EEG, EKG, etc. prior to July 1st was a "jumping off" place, and this charge should not be exceeded by the combination of the two fees. After the first audit (apparently they are relying very heavily on the first audit, and until that time do not seem to be too concerned about hospital charges), the hospital charge will be reduced to cost, and hence the combined charge of hospital cost plus professional fee may be the same, or more likely less for given x-ray or lab procedure. Occasionally, it may be more, particularly in the lower priced examinations where the physician's professional fee may be recognizably increased to offset the cost of collection and loss in collections. It was reiterated that previous arrangements and charges are a starting point but need not necessarily persist.

The question was asked that if the hospital and the physicians could reach no agreement and the total price was increased what would be done. The exact quotation was your "friendly intermediary" will mediate. However, it was pointed out that mediation can only take place where the concerned physicians have assigned their benefits to the hospital or designated the hospital as a collecting agent. Where the physician takes an assignment from the patient for the professional fee, then, of course, only a reasonable and prevailing charge will be reimbursed, and the patient will be informed that the charge he has received is not considered reasonable on the current reimbursement principles and rates.

The question was brought up about new physicians in these interested fields entering areas where open staff arrangement has been established by separate billing and if assignment of benefits is made then the same rules will apply.

The question was raised about payment of anesthesiologists when the surgical procedure is not covered by Medicare (i.e. dental surgery). This is still being studied but it appears that it would be in denial of payment not to pay the physician and probably there will be situations where the anesthesiologist may be paid a professional fee

on a case where the surgical procedure is not covered.

The hospital that has salaried house physicians to care for patients when the patient's own physician cannot be reached or obtained was discussed. This is considered a hospital-based physician and payment on a reasonable cost basis as a "hospital-based" physician under Part A will be made, or payment under Part B (reasonable charge basis) depending on his status and arrangement with the hospital.

Physician services in *non-participating hospitals* can be covered by separate billing under Part B. The laboratory and x-ray of a non-participating hospital can apply for approval as an independent laboratory, and the breakdown of charge is not required as in the office, and this is then considered a physician's service and can be covered.

Along these lines, it was strongly inferred that the new permanent regulations will still require a laboratory to be inspected and approved as a participating laboratory, as the initial publication required, but that radiologists offices will become a "physician-provider" service and not be required to meet the laboratory regulations. This was alluded to on several occasions and it appears that radiology will be considered a "physician-provided service" under the permanent regulations and, hence, the radiologist's office will not be considered as an "approved or non-approved" laboratory, and will be treated as any other physician's office providing a service to the patient. Apparently the presence of several laboratories in the country which are not physician supervised, and the rarity of a non-physician supervised radiology department, was the rationale behind this latest decision, for which I am sure the radiologists are most grateful.

It was stated that by now we should have either a temporary or a final division of fees established so that payment could begin to flow from the states that seem "hung up". Temporary is considered four, six, or seven months, and any difficulties persisting must be resolved as fast as possible.

The caution in payment of Part B is because no retroactive correction is possible. Payment can flow under Part A since the audit can produce retroactive correction of under payment or over payment to the hospital. Approved independent laboratory services are subject to audit and should keep records appropriately, but it appears that

this may apply only to the pathology and laboratory fields under the new permanent directives.

The most important concept to come out of the meeting in regards to the impending permanent regulation changes came as a surprise to the Hospital Association representatives, the Medical Society representatives, and the intermediaries. Apparently following the philosophy that everything that operates needs administration, it was decided by the SSA that the "hospital-based-physician" billing under Part B could not possibly be receiving full remuneration, since Part B is for professional services alone. Hence, there is a nice juicy apple being dangled where part payment will be made through Part A for administration of the department, and the radiologist or other physician would be charging too much under Part B, thus Part B schedule should be reduced slightly, say three to four percent, and that three to four per cent be paid through the hospital to the physician out of Part A. To quote Mr. Berman, "I have never seen a hundred per cent Part B service upon reviewing pre-existing arrangements."

The New Mexico Medical Society was represented by a surgeon who yielded a very vigorous protest in this area, stating that as Chief of Surgery he spent much time in helping maintain the standards of the surgical department, and for that administration he didn't want a salary; he also spent much time on the Record Room Committee and was on the Utilization Review Committee, and certainly didn't want a salary for these activities. There was vigorous opposition from all parties to this concept. The most outspoken representative of the Texas Hospital Association immediately saw the problem it would involve in trying to establish this on all patients rather than just the Medicare patients. Needless to say, the radiologists and the pathologists present objected vigorously as well. The Part B intermediaries were almost in tears, since this would require almost a complete start over. This reaction surprised the SSA people from Baltimore, and a pole of the group showed almost unanimous opposition. It was felt it was too late to change the regulations, but that probably an intermediary letter would be sent out to reiterate the statement made in the initial part of the talk that "any other arrangement satisfactory to both parties" will suffice. The Dallas regional office manager for the SSA, Mr. John Mullane, felt that a complete remunera-

tion through the Part B area, as with the other specialties, was the absolute answer to their very complicated problem at this time. He was so much at variation with the Baltimore thinking that one wonders if he may not soon get promoted to another job. Mr. Berman seemed to indicate an intermediary letter would go out, not only indicating any other agreement, but in all likelihood where there is total and complete separate billing and no written contract between the hospital and the physician, the definition of hospital-based physician would no longer apply to a specialist in radiology or anesthesia.

He was informed in no uncertain terms by the representation from Oklahoma, Louisiana, and Arkansas, with good support from the Hospital Administrators present, that it was felt unlikely there would be a place to plant this check for administration even if it was written. It would cost the hospital a very large sum to account and figure out the time devoted to administration and then relate it to the total number of procedures. The hospital would profit none whatsoever from the check, and there wasn't a specialist in the group who would accept it. In all fairness to the SSA people from Baltimore, where some of these plans undoubtedly were formulated as a result of the prevailing practice, it seemed that this is the first time they realized that what prevailed in Baltimore did not necessarily prevail in the Southwest and, hence, these meetings with our representation are probably worthwhile. Whether the regulation is changed or amended or not, they certainly were forewarned that there will be a total non-acceptance on the part of the physicians on any check tendered for administrative work.

The question was brought up about the policy letters to the intermediaries, which apparently are most important in this early period of development when there is almost daily change. It was stated that some of the letters are administrative in nature and not for general information, but some of the letters contain information which certainly could be made available to the state medical societies and other interested parties, and after discussion, it was decided that the intermediaries for the state could release these letters on a selective basis to interested parties. It is to be hoped that our representatives will get together with the Blue Cross people and get us copies of these policy letters to intermediaries as they come out.

Films mailed to the radiologists from outlying

hospitals were discussed. The radiologist's fee in these cases will be under Part B under the new regulations and, hence, either the radiologist or his agent must collect under Part B. His agent may be the local hospital, other agents, or he may collect from his own office.

Once again, Mr. Mullane said he liked the complete split and that he personally did not consider those billing separately as any longer meeting the definition of a hospital-based physician, which would make his work much easier. This was also voiced by most of the intermediary carriers, except for Texas Blue Cross-Blue Shield where the physicians and the plan are still glaring at each other through the courts.

The question arose regarding hospitals where there was no written contract between the physician and the hospital. To the profound amazement of Mr. Berman from Baltimore, it was apparent that very few of the hospitals and their radiologists or pathologists had contracts prior to July 1st, in a written form, and no one present had a written contract for after July 1st. As the hospital administrator from Lufkin, Texas put it, eight years ago his radiologist arrived, they discussed an agreement, shook hands, and went to work, and things have gone fine ever since. They agreed on separate billing the first of July, and that's caused no problem, and he doesn't expect a contract with the surgeon to administer the functions of Chief of Surgery, and he is certainly not going to require, just for the benefit of the SSA, a contract from his radiologist (which he doubted he could obtain) just to meet their requirements. This was another factor which appears to frustrate very greatly the SSA's plan to reimburse the hospital-based physician from Part A through the hospital on a complicated formula for administration if the physician selects to bill separately through Part B.

Another situation which was pointed out was that the Medicare patient who pays \$4.00 to the radiologist for interpreting his chest film heretofore would be entitled to 80% rebate on \$4.00 provided he met his deductible, but under the new plan he would be entitled to a rebate of 80% of \$4.00 less the administrative amount, say 20c. Thus the patient would receive 80% of \$3.80, and that a large amount of energy would be expended in developing a payment of the other 20c through Part A. After this gyrations, I knew of no major hospital in Arkansas where radiologists would ac-

cept this check. Neither the intermediaries or the hospital association were interested in this type of split, and this probably will be changed, and in the meantime non-compliance may delay your payment, unless you are billing directly the patient.

It was clearly evident that the fewer contracts that are negotiated between the hospital and the radiologist the better for both parties. It was mentioned that a hospital, if profiting from x-ray, was in a position of being ruled a "profit rather than a non-profit" association by the IRS and, hence, the hospital and the radiologist for different reasons are much better off to work as most of them have in the past with staff appointments and no fixed and binding contracts. This is an observation from the general discussion and not a statement of the SSA.

The question was brought up regarding the surgeon or orthopaedist, who makes a film in his office and records a dictated and signed report, and then sends his film to the radiologist for consultation and a signed report; could both parties recover under Part B? The answer is "Yes". The referring physician could recover his charge, and the radiologist was entitled to collect from the SSA a consultation fee, just as the internist who listens to the patient's heart for the general practitioner may be paid for the consultation, even if his findings did not vary from what the referring physician had found and recorded. This reinforced the diagnosis or absence of diagnosis in either case and was to the patient's benefit. (The economy of practice is still governed by non-Medicare patients, and this does not seem to be a very wise procedure to pursue).

The question came up as to what constitutes a specialist. Specifically, could a physician who owned his own hospital interpret and provide signed reports on the radiographs, electrocardiograms, etc., and collect both Part A and Part B on

these procedures, and the answer is "Yes". The person does not have to be necessarily Board certified in a specialty field to obtain remuneration for his service in that field, but the requirements to function as a specialist in a given hospital are usually established by the staff, except in the very small hospitals.

Over all impression of the meeting is that it was worthwhile. It may not accomplish any specific changes, but if it did nothing else it gave the policy making level people an insight into the regional complexities of practice. Practice is not the same in our widely disseminated population of the Southwest as it is in the dense Eastern seaboard, and it was clearly apparent that the regional office people in Dallas had a complete understanding of the variations in the local practice, and that most of the points of dissention mentioned above were made apparent for the very first time to the policy making level in Baltimore and Washington. What, if any, change will result from this exchange of information will have to be judged as time passes. It appears that the regional people are trying to adapt to the practice as it is as far as possible, and are not trying to "play sides" with the intermediary, the hospital-based specialist, or the hospitals. Our participation may well have strengthened the Dallas regional office with their superiors in regards to adjusting the Medicare regulations to fit the local practice, and certainly the gentlemen returned to Baltimore with a clear understanding that there were very few contracts present in the area, and any checks for administration they wanted to write to the surgeon, pathologist, radiologist, etc., out of the Part A funds to be delivered through the hospital, would have a hard time finding a home. There were several suggestions made on the side as to what could be done with the checks, but these are not readily printable or pertinent to this note.



Blood Supply to Human Spinal Cord

O. Hassler (University of Umea, Institute of Pathology, Umea, Sweden) *Arch Neurol* 15:302-307 (Sept) 1966

The spinal cords of 35 autopsies were exam-

ined by microangiography. With this new technique, stereoscopic x-ray pictures with extremely high power of resolution were obtained of the intraspinal arteries, arterioles, and capillaries. Several differences in the vascularization were observed among the various levels of the spinal cord.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., *Professor and Chairman*

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The Use of Continuous Lumbar Epidural Anesthesia in the Conduct of Labor

T. Paul Thompson, M.D.*

Low spinal, "saddle block," anesthesia has proved to be reliable for general use and in the training of young physicians. The technique is simple, and with proper precautions, safe. Unfortunately this form of anesthesia is primarily a terminal type and of limited benefit in labor.

An ideal anesthetic must be technically simple, effective in early labor, fast acting in pain relief, and notably lacking of side reactions.

Of the forms of extra or peridural anesthesia used in obstetrics, caudal has emerged as the most accepted whether in single or repeated dosages. Disadvantages of caudal include proper positioning and immobilization of the laboring woman, especially an obese patient.

A number of years ago an approach to the epidural space by the lumbar route proved satisfactory both for abdominal and thoracic surgery. Except for single injections, it was used in a limited fashion in obstetrics. With the development of nylon and polyethylene catheters, continuous lumbar epidural anesthesia is practical. The technique is not difficult to learn, can be used in early labor, and produces rapid anesthesia.

HISTORY

Extra or epidural analgesia of one sort or another has been practiced since 1901, when Sicard and Cathelin¹ of France popularized the sacral approach. Tuffier was probably the first to attempt the lumbar approach, but met with little success, and it was not until 1913 that Heile revived the idea of high epidural block by entering

the spinal canal laterally through the intervertebral foramina. In the meantime, the caudal route had become accepted as the only safe approach to the epidural space.

Pages², in 1921, revived interest in the midline lumbar approach and stressed the increased ease of access and wider applicability of this route as compared to the caudal. He utilized the tactile approach, sensing "by feel" the needle passing through the ligamentum flavum into the epidural space. A certain degree of skill was necessary for this technique and other workers have now substituted mechanical means for manual dexterity.

TECHNIQUE

In the lumbar area, usually at the L3-L4 interspace, the Touhy needle pierces the ligamentum flavum and enters the epidural space. This space is located by use of the "loss of pressure" test. Aspirations are made for spinal fluid or blood. When the position of the needle is certain, an injection of an anesthetic agent is made and, following this, a polyethylene tubing, size 23, is inserted through the needle for a distance of approximately three centimeters. A second injection is made prior to withdrawing the Touhy needle and taping of the polyethylene tubing to the skin of the patient's back. Next, an injection of twelve to fourteen cubic centimeters is made slowly. The patient is placed in the recumbent position with a pillow under her head and blood pressure is checked every two minutes for a twenty minute period, then every fifteen minutes thereafter. Subsequent anesthetic dosages are generally

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necessary and are administered when the patient first becomes aware of a returning sensation of uterine contractions or when skin anesthetic levels begin to fall. The anesthetic agent employed was Xylocaine* 1% or 2% without epinephrine. Most of the patients were delivered with three or fewer 200 milligram injections. Thirty-two per cent had one injection; thirty-nine per cent received two injections; and thirty per cent required three or more injections. Total dosages ranged from 200 milligrams to over 800 milligrams.

RESULTS

Two-hundred-eighteen epidural blocks were attempted in a group of unselected obstetric patients. Two-hundred-two (92.7%) were successfully completed. One-hundred-fifty-eight of the 202 (78.2%) were carried successfully to delivery without supplemental anesthesia. Forty-four patients required supplemental analgesic agents, and of these, twenty-six needed terminal anesthesia.

The duration of labor was similar for both primiparas and multiparas. For the primiparas the average first stage was 7 hours 48 minutes; second stage 48 minutes; and the third stage 6 minutes. For the multiparas the average duration of the first stage was 7 hours 43 minutes; for the second stage 27 minutes; and third stage 6 minutes. It can be seen that, except for the second stage in the multipara, these times were essentially the same regardless of parity.

TABLE I	
INFANT EVALUATION AT ONE MINUTE	
APGAR SCORE	NO. PATIENTS
10	115
9	21
8	17
7	10
6	7
5	11
4	8
3	7
2	4
1	0
0	2
TOTAL	202

There was a fairly high incidence of operative delivery. Seventy-two per cent were delivered with episiotomy. Elective low forceps were used on 11.8 per cent and only 6.4 per cent required mid-forceps Kielland rotation.

*lidocaine—Astra.

Tables I and II show the Apgar evaluation of 202 newborn infants at one and five minutes after birth. Two stillbirths occurred in prematures in the antepartum period. There were no intra-

TABLE II	
INFANT EVALUATION AT FIVE MINUTES	
APGAR SCORE	NO. PATIENTS
10	163
9	14
8	12
7	4
6	0
5	2
4	2
3	3
2	0
1	0
0	2
TOTAL	202

partum deaths. At one minute, forty-nine infants (24.3%) showed some degree of depression (Apgar score 0-7). At five minutes only thirteen infants (6.4%) were depressed in this unselected series.

There were some postpartum complications—two headaches, one fever, and two instances of bladder atony. The two patients with bladder atony responded well to bladder drainage.

Twenty-six patients had inadequate anesthesia. Twelve failed because the polyethylene tubing slipped out of the epidural space, six failures were of undetermined cause, and three anesthetics were given too late in the first stage of labor. Five had unilateral anesthesia which failed to relieve uterine pain but provided perineal anesthesia. There were sixteen failures to enter the epidural space. Spinal fluid was returned in six, five were failures because of the obesity of the patients. During the first one hundred epidural attempts, the procedure was discontinued five times because of a bloody tap.

Drug reactions are noted in Table III. There were no allergic manifestations. Twenty-four patients (11.9%) had some form of toxic reaction. Certain patients had more than one type of reaction. Hypotension was the most common offender; next was shivering and a feeling of coldness, particularly of the upper extremities. This occurred in eighteen patients, and was probably a sympathetic or parasympathetic reflex reaction. Other authors have reported these symptoms.³ Four patients had postural hypotension due to

TABLE III
DRUG REACTION TO EPIDURAL
ANESTHESIA

Allergic Reactions	0
Toxic Reactions	
Dizziness	5
Drowsiness	1
Hypertension	2
Tachycardia	2
Nausea and Vomiting	5
Blurring of Vision	2
Shivering	8
Hypotension	13
a) Postural	4
High level	2
b) Other	
Level T10	7
Convulsion	1

inferior vena cava compression and responded well to rolling the patient onto her left side. Seven patients exhibited hypotension with skin levels of T10 or below, perhaps because sympathetic blockade caused pooling of blood. These patients responded quite well to Trendelenburg position. Two patients had episodes of hypotension associated with high levels in the areas of C4 or C5; one responded well to Trendelenburg, and the other to vasopressors.

Other less frequent symptoms were transient—hypertension, tachycardia, nausea with vomiting. These may occur as early or late manifestations of cerebral or medullary stimulation, either by excessive blood level of the anesthetic agent, hypoxia, or both.

One patient had an overt convulsion following the test dose. This was believed to be an acute toxic reaction with cerebral stimulation, and the patient responded to barbiturates and oxygen.

No cases of subarachnoid block occurred.

DISCUSSION

Successful continuous epidural anesthesia depends upon accurate placement of the needle in the peridural space, through which a catheter may be placed for repeated injections of anesthetic agents. With a patient in a sitting position with the spine flexed, the volume of the spinal canal is decreased and the peridural space increased. We utilized the loss of resistance test of Sicard and Dogliotti,⁴ applying constant pressure with a syringe filled with air to locate the space. The Sicard-Dogliotti method is successful in ninety-five

per cent of the patients.

Passage of the polyethylene tubing is difficult; however, the curved end of the Touhy needle facilitates this maneuver. We now bevel the end of the catheter and this has helped. We had no complications associated with the use of polyethylene tubing. Once the tubing has passed the needle tip, it must not be pulled back, or it may be sheared off. Careful taping of the catheter to the patient's back usually prevents its displacement. Repeated doses can be given as needed. We noted that the pain of contraction returned soon after skin anesthetic levels dropped one to three centimeters and in a very short time following this drop, complete anesthesia disappeared and pain recurred. Since then we have added more drug following the preliminary skin level drops to insure continuous anesthesia.

Our success rate of 78.2 per cent is less than the 94 per cent to 98 per cent reported by others⁵ in spite of the fact that we were successful in penetrating the epidural space in 92.7 per cent of the patients. In comparison, caudal anesthesia success rates vary from 70 per cent to 90 per cent. In our series, where the epidural anesthesia was not successful, there were no complications following the use of low spinal anesthesia ("saddle block").

Total labor, particularly the second stage, was not prolonged. In five patients, Pitocin stimulation in late second stage was required. Mid-forceps were used in only 6.4 per cent of our deliveries. Other authors report incidences of mid-forceps delivery with epidural and continuous caudal anesthesia of from 17 per cent to 44 per cent.

The purpose of using continuous epidural anesthesia is relief of maternal pain without the need of other analgesic or anesthetic agents that might depress the infant. Only 24.3 per cent of the infants were depressed (Apgar 0-7) in the first minute of life. Included were six severely depressed infants (Apgar 0-2), fifteen moderately depressed infants (Apgar 3-4), and twenty-eight mildly depressed infants (Apgar 5-7). Only 6.4 per cent were depressed four minutes later. Prolonged depression (at five minutes) of the infant associated with transitory maternal hypotension—three; precipitous labor and delivery—one; maternal convulsions—one; and undetermined—two. Apgar has shown⁶ statistically that infants are significantly less depressed with conduction anesthesia than with inhalation anesthesia.

Treatment of toxic reactions consists of keeping the airway open plus adequate oxygenation until effects have disappeared. If convulsions do occur, we prefer use of a muscle relaxant⁷ rather than of barbiturates which might mask oncoming respiratory or cardiovascular collapse.

During the course of this series, epidural anesthesia was used for three repeat low cervical cesarean sections, and three tubal ligations. We have also successfully treated post-spinal headaches with the introduction of saline into the epidural space using similar techniques.

CONCLUSIONS

1. Two-hundred-eighteen patients in whom continuous lumbar epidural anesthesia was attempted are presented. This technique was successful in 92.7 per cent of attempts.
2. Anesthesia satisfactory for labor and delivery was effected in 78.2 per cent of 202 patients.
3. Continuous lumbar epidural anesthesia neither caused prolonged labor nor increased the incidence of mid-forceps deliveries.
4. In this obstetrically unselected series 24.3 per cent of the infants showed depression at one minute and only 6.4 per cent were depressed at five minutes.
5. Drug reactions occurred in 10.8 per cent of the cases with only one severe reaction—a convulsion. These reactions were successfully treated with vasopressors, barbiturates, and oxygen. No cases of maternal or intrapartum fetal mortality occurred.

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GUEST EDITOR

Richard B. Clark, M.D.*

The peridural (or epidural) space may be approached from a number of directions, including the caudal and lumbar epidural routes. The caudal approach is the more firmly entrenched in obstetrical usage. Why then, do we choose to favor lumbar epidural for continuous anesthesia during labor and delivery, rather than caudal? Lumbar epidural anesthesia is easier to learn and less painful to the patient. Every few months we have new residents and interns on our service, and in six to twelve attempts, they have almost always become confident in the method. Caudal anesthesia, on the other hand, requires a great deal more experience before proficiency is obtained. Caudal does have the advantage of a very low incidence of entry into the subarachnoid space. It is almost unheard of to enter this space via the caudal route (the dural sac usually ends at S2) but it is not uncommon to obtain a flow of CSF with the lumbar epidural approach, especially in inexperienced hands. Doctor Thompson's paper listed six instances of inadvertent subarachnoid tap. If this occurs, the technique must then be abandoned.

Caudal anesthesia can be very useful if the patient refuses spinal or lumbar epidural. Many patients have an unfounded emotional bias against anything suggesting spinal anesthesia, but often will accept caudal. In the obese patient epidural is preferred, as the sacral hiatus is very difficult to locate in the presence of large amounts of adipose tissue.

Lumbar epidural is now one of our most useful techniques. In 1965, 480 of our patients (out of 1,822 vaginal hospital deliveries) were delivered by this method, almost always with excellent results. Forty-five patients received caudal anesthesia.

As this paper was written some time ago, there have been several slight changes in our technique. Carbocaine 1% is now used, rather than Xylocaine, because of its longer duration of action. 1% Carbocaine** usually gives adequate anesthesia, and is less toxic than 2% Carbocaine. We now inject a dose of drug every hour, rather than allowing the anesthesia to begin to wear off. If the anesthetic is partially lost, great difficulty may

*Obstetric Anesthesiologist, U. of A. Medical Center, Little Rock, Arkansas.

**mepivacaine, Winthrop

ensue in attempting to re-establish anesthesia. The reason for this is unknown.¹

After placing the epidural needle, a test dose of three cubic centimeters of 1% Carbocaine is given. This is to ensure that the needle is in the epidural, rather than in the subarachnoid space. The catheter is then threaded through the needle. If no anesthesia ensues in five minutes, the remainder of the first dose is given through the catheter, usually to a total of fifteen to twenty cubic centimeters. Repeated doses are usually ten to fifteen cubic centimeters with an anesthetic level of T10 the result. The total single safe dose of Carbocaine is said to be 400 milligrams. In continuous techniques, this total may be exceeded over a period of several hours, as some of the drug is absorbed and detoxified (in the liver) during this time. We do not give more than 1500 milli-

grams² over any period of time, and try to stay well below this amount, not usually over 800 milligrams.

Continuous anesthesia is usually begun when the patient is in active labor, usually six centimeters dilated in the primigravida and four centimeters in the multigravida.

Continuous lumbar epidural and caudal anesthesia play a prominent role in our practice. We feel they are the nearest thing obtainable to the ideal obstetrical anesthetic. Their use demands skill in the technique, constant attendance, and proficiency in outlet forceps.

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Mitral Insufficiency Secondary to Ruptured Chordae Tendineae

R. H. Childress, J. C. Maroon, and P. D. Genovese (VA Hosp, 1481 W Tenth St, Indianapolis) *Ann Intern Med* 65:232-244 (Aug) 1966

The diagnosis of mitral insufficiency secondary to ruptured chordae tendineae of the mitral valve in five cases studied was suggested by the history and physical examination; it was confirmed at postmortem in three, and supported by cardiac catheterization and cineangiocardiographic studies in two. The syndrome is characterized by unusual manifestations of mitral insufficiency. In two patients the physical findings simulated aortic stenosis, and the latter diagnosis had to be excluded by cardiac catheterization and cineangiography. In two other patients the cineangiograms revealed the hooded deformity of the mitral leaflet. In all cases the electrocardiogram revealed U wave abnormalities; in two cases these developed de novo from the presumed time of chordae rupture and in the remaining two the time of the first appearance of this electrical abnormality was unknown.

Dysplasia of the Sella Turcica: Clinical and Laboratory Investigations in Three Cases

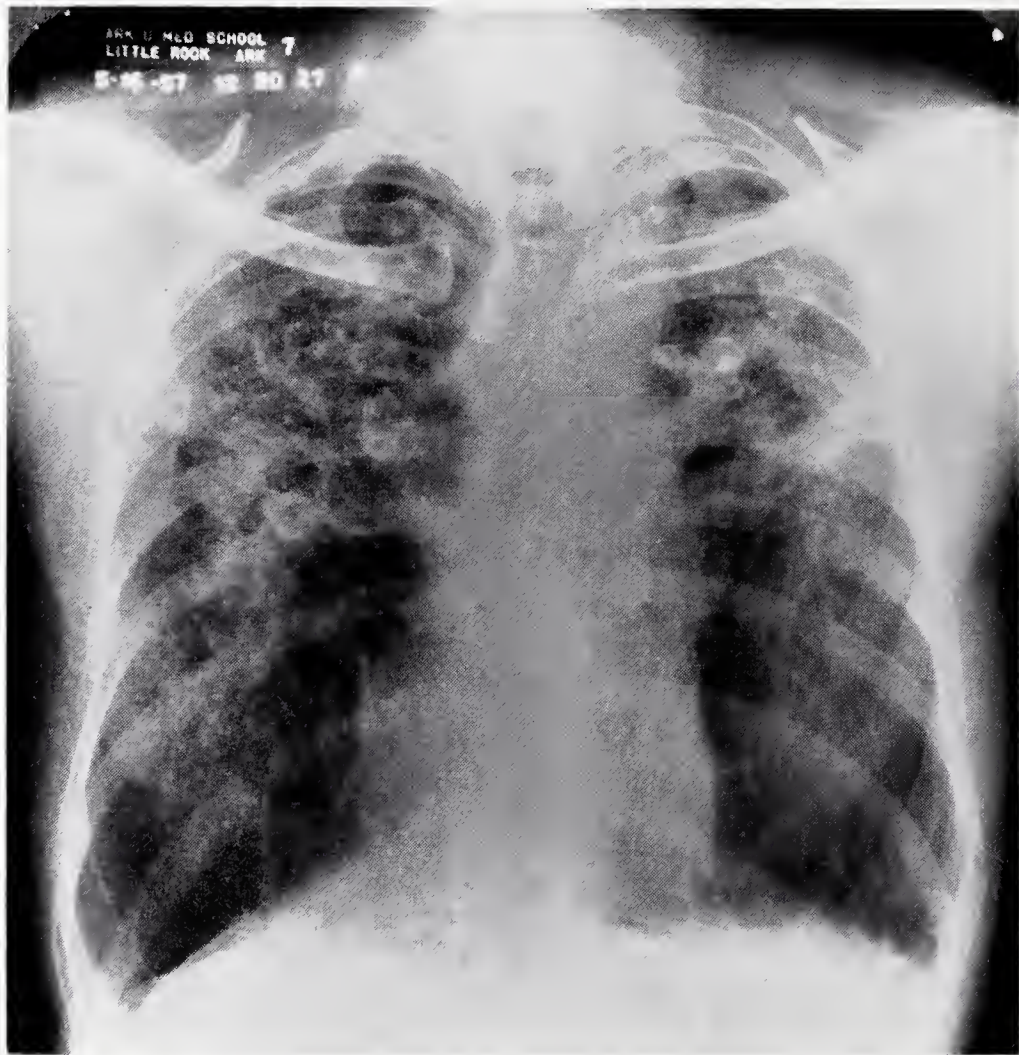
P. O. Lundberg and C. Gemzell (University of Uppsala, Department of Obstetrics and Gynecology, Uppsala, Sweden) *Acta Endocr* 52:478-488 (July) 1966

Three cases are described with no actual sella turcica but only a shallow depression in its place. The name dysplasia is suggested for this as distinct from the term "a small sella" used to describe a clearly definable and normally shaped sella turcica but which is smaller than average for the patient's age. Endocrine dysfunction was present in all cases to a varying extent. In the first case hypogonadism, dwarfism, obesity, frontotemporal baldness, hypothermia, and cataract were present. In the second case, hypogonadism, slight obesity, and a defective cortisol/corticotropin feed-back mechanism were found. In the third case with least pronounced dysplasia, the endocrinological investigations only showed frontal baldness and a decreased glucose tolerance. The EEG was pathological in all cases, but air-encephalography showed no changes outside the suprasellar region.

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 301



HISTORY: Fifty-five year old white male with a seven year history of dyspnea and wheezing. In the past six weeks there has been cyanosis and the patient's ankles became swollen two weeks prior to admission. He has a history of having worked in silver mine for about five years 30 years ago.

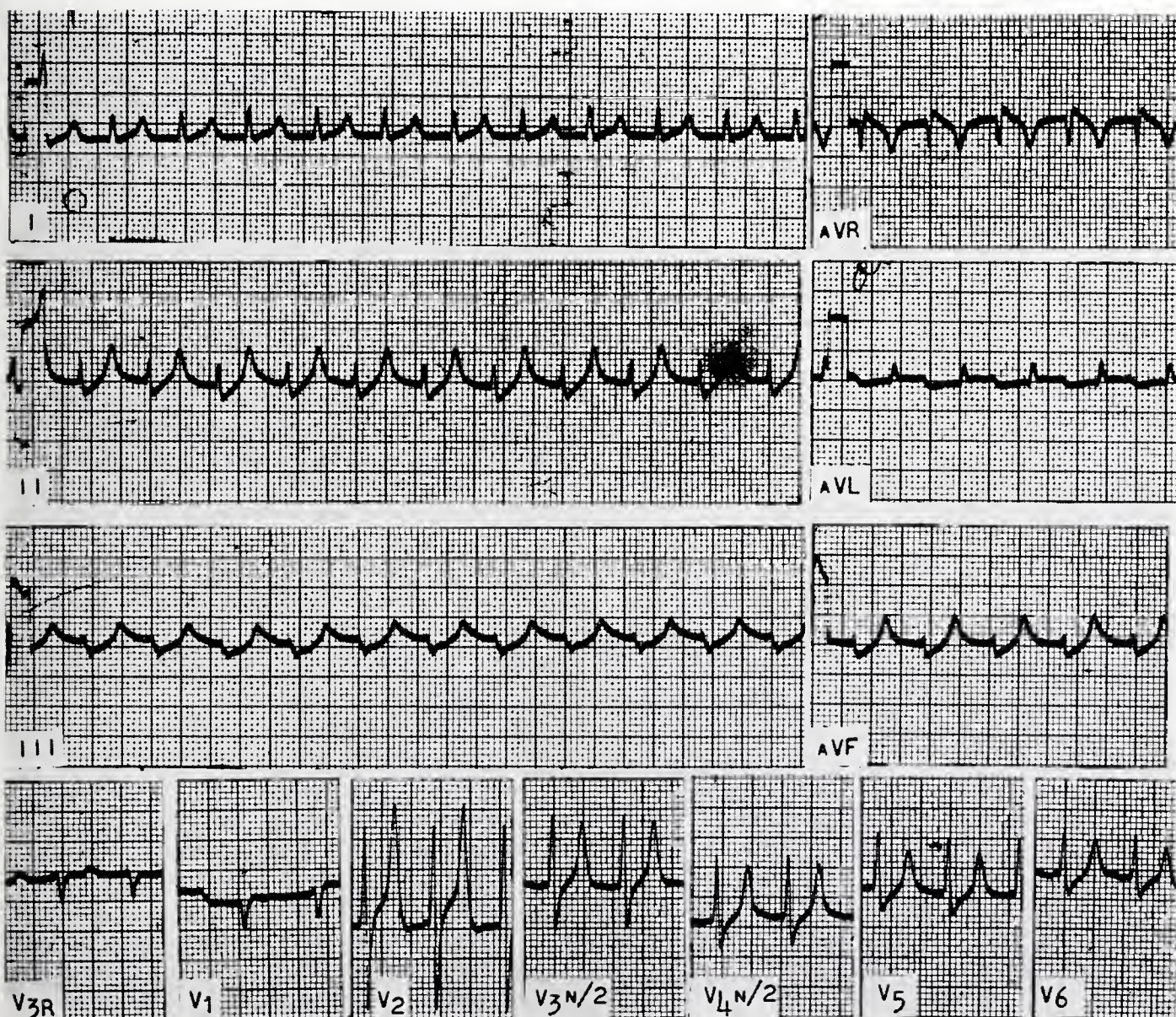
ELECTROCARDIOGRAM



OF THE MONTH

AGE: 53 SEX: M BUILD: Medium BLOOD PRESSURE: Not Stated
 CARDIAC DIAGNOSIS: None
 OTHER DIAGNOSES: 3rd degree burns with renal failure
 MEDICATION: —
 HISTORY: 3rd degree burns

ANSWER ON PAGE 301



The Department of Medicine, University of Arkansas Medical Center
 James S. Taylor, M.D., Professor of Medicine



Tuberculosis Control in Arkansas - 1966

A Patient Centered Approach

W. Paul Reagon, M.D.*

The passage of Act 275 of 1961 made possible the development of a modern tuberculosis control program in Arkansas. This paper presents a review of the achievements, current status and future challenges of the program after five years.

In 1961 a number of unanswered problems existed. The most important ones included:

1. 1,758 active cases of tuberculosis at home with no known medical supervision.
2. A massive program of relatively ineffective case detection (survey x-rays and school skin testing) with no organized community program for medical consultation, or long term drug therapy.
3. Death rate from tuberculosis two times the national average.
4. Inadequate bacteriology primarily based on the sputum smear rather than the culture and complete identification of organisms.

An approach which emphasized services to the tuberculosis case and his family was initiated. These services were made available in the individual's community unless there was a clear cut medical indication for hospitalization. The program was initiated in a community upon request of the local medical society. Community-wide case detection programs were de-emphasized because they had been proven ineffective. The funds available were utilized to build a patient-centered program with the following precepts:

1. A person was to be considered as having tuberculosis only when nationally accepted criteria for the diagnosis of this disease had been fulfilled.
2. No person would be denied services as a means

of coercion.

3. Services would be made available as near the patient's home as possible.

This approach resulted in the development of local chest clinics, staffed by a physician with specialty training in Internal Medicine or Thoracic Surgery and an interest in tuberculosis.

ACHIEVEMENTS:

Table I records some of the clear cut changes in the status of tuberculosis between 1961 and 1965.

TABLE I Selected Tuberculosis Data 1961-1965		
	1961	1965
New Positive Sputum Cases	487	443
Hospitalized Active Cases	871	391
Active Cases at Home with Inadequate Medical Supervision	1758	558
Tuberculosis Deaths:		
Arkansas TB Death Rate per 100,000	10.4	4.2
U.S. TB Death Rate per 100,000	5.4	4.2*
* Provisional Data		

Table II records the experience of the cohort of 389 new positive sputum cases first diagnosed in 1964 after an average follow-up of 18 months. 59 died during this interval, 32 of tuberculosis, 27 of other causes. The status of the remaining 330 is summarized and presented to show the effect of chest clinic supervision.

TABLE II Status after 18 Months of 1964 Positive Sputum Cases		
	No Chest Clinic Supervision	Some Period of Chest Clinic Supervision
Total of 1964 (cases)	165	165
Positive Sputum on last report	19	7
Returned to Usual Employment	71	87
No Return to Usual Employment	94	78
Current Supervision Unknown	51	12

CURRENT STATUS:

During 1966 further evaluation of individual "active" cases at home without adequate medical supervision has been made, a large number of these have been found to be off of drug therapy

* Director, Division of Tuberculosis Control.

and inactive when accepted criteria regarding activity are utilized. In November 1966, an estimated 200 active cases were still without adequate

tuberculosis through October 1966.

FUTURE CHALLENGES:

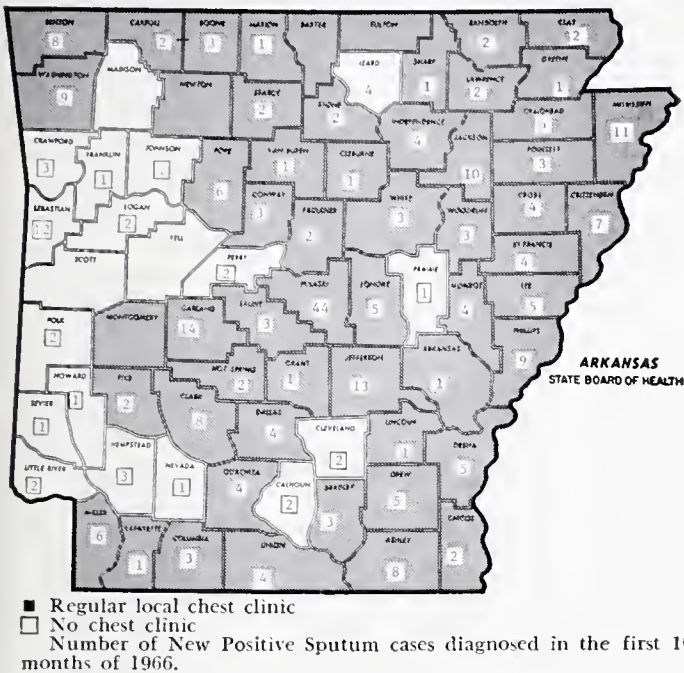
Just as new knowledge always raises new questions, a truly successful venture should reveal new horizons and goals. The Arkansas chest clinic program, by its success, has made possible the development of a broad based clinically oriented tuberculosis control effort in each of our counties. In this effort, case detection will be tailored to the particular needs of each area and long term medical consultation and drug therapy will be available.

Some patients will still need a short period of hospitalization for initial diagnosis and treatment. Others will need a longer period of highly complex inpatient care to handle problems such as resistant organisms or major surgery.

The total program will need to be geared to a concept of service to the patient and his family, education of the practicing physician regarding the changing concepts of tuberculosis and research to attempt to solve the unanswered questions still remaining.

Coordination of this community out-patient program with a modern tuberculosis hospital which is itself not only a service organization but also a facility for professional education and medical research remains the greatest future challenge.

STATUS OF TUBERCULOSIS 1966



medical supervision, primarily in counties without chest clinics. Clinics are now established in 56 counties, 29 specialists serve as chest clinic consultants on a regular basis. The following map illustrates the distribution of local chest clinics and of new positive sputum cases of pulmonary

ANSWER—Electrocardiogram of the Month

RATE: 135 RHYTHM: A-V Nodal

PR:— QRS: .09 QT: .28

SIGNIFICANT ABNORMALITIES:

P waves not visible with normal duration QRS. Tall, peaked T waves with non-specific ST changes.

INTERPRETATION: Abnormal

Changes characteristic of hyperkalemia

COMMENT:

The T changes present are the characteristic narrow-based, peaked, slender T waves found with hyperkalemia.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Silicosis.

X-RAY FINDINGS: There is marked interstitial scarring in the upper perihilar areas, pulling the hilar structures upward. The scarring is less severe in the apical and basilar areas. There is extensive calcification of the peritracheal and peribronchial lymph nodes of the eggshell type.



EDITORIAL

Guest Editorial

Are You Giving Patients to the Government?

W. G. Lawson, M.D.*

Are you as tired of reading articles entitled "What's wrong with medicine?" as I am? There must be some causes for complaint or we should not have to endure such a steady diet of such material. There is a certain art in setting the mood of professional intimacy so that families feel comfortably protected and relieved in word or deed by their physician. The best established relationship will give the patient a feeling that in anything concerning himself, the answer is in the protective custody of his physician, his office, and his assistants. One of the most obvious ways of showing personal interest by the physician is to provide and encourage care over and above what the patient might have asked for. In this realm is included the automatic provisions for progressive maintenance of immunization for a constant state of preparedness for the patient.

One would think any modern practicing physician would not fail to take advantage of the many immunogens that have been developed at such great expense in time, money and ingenuity. The truth is, however, that a high proportion of the population never receive immunizations unless they are driven to ask for them by reason of fear, and then, by histories that we obtain, these too are often given reluctantly. The widespread deficiency in protection has even required that lay groups be called upon to promote and encourage public immunization with the consequent detraction of responsibility from the physicians office, and in many communities establishing a dependence upon public health facilities. This most naturally orients the family to consider the public health service as more nearly the supervisory medical agent than their own physicians. It has

become such a concern with our own Arkansas State Medical Society officials that in 1965 the former Sub-Committee on Poliomyelitis was re-oriented to a broader scope as the Sub-Committee on Immunization. It is our feeling that the general public is eager and willing to obtain regular broad spectrum immunization and that they need only the mildest prompting on the part of their family doctor to maintain all commonly recommended protections. It is surprising how many fatalities are still seen in the communities of this state each year resulting from each of the major preventable diseases, including diphtheria, pertussis, tetanus, and measles. The present status of international tension, rapid transportation, integration disturbances, water and air pollution, and warfare make the entire population more vulnerable to communicable disease than ever before.

After reviewing reasons immunizations are denied to them by their family doctor, the following statements most commonly apply:

- (1) Do not deny immunization just because of a runny nose. The majority of runny noses are not "cold," in the first place, and present day immunization materials are of extremely low toxicity and side effects. If you wait for a "dry nose" in most children, they will never be immunized.
- (2) Do not wait for different seasons. We find that immunizations in the winter time are put off until summer only to be put off until the winter, etc. There is no valid reason in this day and time for deferring any immunization, except rarely smallpox because of open skin lesions, and not because of season.

*207 East Dickson, Fayetteville, Arkansas

- (3) Killed and live vaccine materials may be used at the same time in a given patient. This will reduce the need for lost time in completing a booster program.
- (4) Live virus vaccines reach their peak "take" after about ten days. There is no need to put off administering a live virus vaccine because of a minor acute illness which you anticipate being gone by the tenth day. It is impossible to guess that far ahead on anyone. Immunize when you have the opportunity. You probably will not have it again soon.
- (5) Do not wait until school-age to vaccinate for smallpox. There is no reason for an immunization as valuable as smallpox to be denied to children for six years during the riskiest part of their life. An unprotected child is in mortal danger of getting widespread vaccination sores just from playing with a child who has an active smallpox vaccination. The younger the child the less the side effect of the smallpox vaccination. Think of the child's welfare rather than just satisfying the state school law. Everyone should be boosted every five years.
- (6) Catch the whole family while they are there together.

With the cooperation of the Arkansas State Health Department, we are planning to distribute this year adhesive backed placards for application to the door of the office refrigerator of every physician in Arkansas. This placard will carry a summarized version of the immunization policies of the American Academy of Pediatrics. It is hoped that even the busiest practitioners make it standard policy for his office assistants to follow-up and prompt each and every patient to maintain full time broad spectrum immunity to the pre-

ventable diseases. If this is done fervently, it will not be necessary for another governmental bureau to intercede.



RESOLUTIONS



WHEREAS, death has removed from our midst our colleague and friend, Dr. Byron A. Bennett; and

WHEREAS, Dr. Bennett was for many years a valuable and highly respected member of this Society; and

WHEREAS, Dr. Bennett gave freely of his time, energy and effort to the betterment of the health of the citizens of Pulaski County and of Arkansas as well as to the betterment of the Society in its programs of public service;

BE IT THEREFORE RESOLVED:

THAT, the Pulaski County Medical Society express its sense of loss and extend its sincere sympathy to Mrs. Bennett; and

THAT, a copy of this resolution be made a part of the permanent records of this Society; and

THAT, a copy of this resolution be forwarded to the Journal of the Arkansas Medical Society for publication.

By Direction of the Memorials Committee
John McCollough Smith, M.D., Ch'man
William L. Fulton, M.D.
T. Duel Brown, M.D.

Comments on Recent Sleep Research Related to Psychoanalytic Theory

K. Z. Altshuler (722 W 68th St, New York) *Arch Gen Psychiat* 15:235-239 (Sept) 1966

Dream research suggests abandoning the idea that the visual dream is more distinguished than any other behavior for its role in drive discharge and homeostatic maintenance. Rather, it is unique only in its mode of the representation of conflict that is active, discernible, and being worked over

in all mental activity and behavior. The haste to resolve Cartesian dualism must also be made slowly. While recent work may parallel the psychoanalytic ideas of conflict, repression, and release, the structures involved are not interchangeable with the structural analytic hypothesis. The confirmation afforded should provide a firm base from which to always freely reexamine a tentative theory, bound in the range of working hypotheses only by the data observed.

MEDICINE IN THE



THE MONTH IN WASHINGTON

Washington, D.C.—High on the list of health legislation to be considered by the new Congress convening Jan. 10 are proposals to amend both the medicare and medicaid programs.

Proposed medicare amendments would extend the program to the disabled, include podiatrists' services, add out-patient drugs to Plan B, and authorize that billing for services of hospital-based physician specialists be put back under hospitals.

Sen. Russell B. Long, (D., La.), chairman of the Senate Finance Committee which handles medicare and medicaid legislation, is pushing a proposal designed to get physicians to prescribe drugs by generic terms for patients under federally-aided medical programs. Such an amendment died in a conference committee in the final days of the last Congress.

Amendments to limit federal expenditures under medicaid (Title XIX) are expected to get early consideration by the House Ways and Means Committee. The committee reached agreement on such legislation shortly before adjournment last year, but it was too late to get it through Congress.

One of the final pieces of legislation passed by Congress in 1966 authorizes liberalization of the Keogh law under which physicians get a tax break for savings put in qualified pension plans. The full amount of the \$2,500 annual maximum was made tax deductible. Only half of the amount was tax deductible under the original law.

Other health legislations approved by Congress in 1966 includes:

Group practice—authorizes federal mortgage guarantees for construction of non-profit group practice facilities.

Health services—authorizes the Office of Economic Opportunity (anti-poverty) to make grants for comprehensive health services programs, including birth control.

Public health—authorizes (1) \$145 million, one-year extension of PHS programs, including \$125 million for project grants for categorical programs.

State and the PHS are given greater flexibility in spending the money among the various categories and including other "public health" projects; (2) extends the federal-aid vaccination program for three years; (3) provides for family health services for migratory workers.

Air pollution—authorizes a three-year, \$186 million extension of the federal anti-air pollution program and provides broader authority for air pollution control activities by localities.

Water pollution—authorizes a \$3.7 billion, four-year program for cleaning the nation's waterways. It includes initiation of a massive program for combatting pollution in major water basins.

Child care—prohibits sale of toys containing hazardous substances and strengthens existing law covering household hazardous substances; does not contain a disputed provision covering children's aspirin and other drug controls in the original legislation.

Narcotics—permits addicts charged with non-violent crimes to choose hospital commitment instead of trial, if the authorities agree, or could be sentenced after trial to hospitals for rehabilitation.

Packaging—requires that over-the-counter drugs and grocery products bear labels clearly showing the contents, quantity, and manufacturer.

Mental health—amends original law to provide grants to assist in the establishment and initial operation of community mental health centers.

Research laboratory animals—provides for federal regulations covering transportation, purchase, sale, housing, care, handling and treatment of such animals.

Military medicare—amends existing law to provide for out-patient care in a physician's office and to include retired reservists and their dependents.

Allied health professions—authorizes \$105 million for a three-year program to train more medical technicians, therapists and other allied health workers.

The federal government has launched an extensive program to control and prevent alcoholism.

As initial steps, Health, Education and Welfare Director John W. Gardner established a National Center for the Prevention and Control of Alcoholism and appointed an 18-member National Advisory Committee on Alcoholism.

In announcing the program, Gardner stated its two major aims:

(1) The immediate goal of making the best treatment and rehabilitation services available to those who need them now—through both the stimulation of existing resources and the development of new manpower and facilities.

(2) The long-range goal of developing effective, practical, and acceptable methods of preventing alcoholism and excessive drinking in all their destructive forms and developing improved therapeutic techniques.

Milton Silverman, special assistant to the HEW assistant secretary for Health and Scientific Affairs, was named coordinator of the program and executive secretary of the advisory committee.

The National Center, will be active in a number of major areas including: basic research, clinical research, education and prevention, consultation and training, and support of local programs.

"It will encourage and support alcohol research in universities and research centers and it will also conduct studies in its own laboratories," Gardner said. "It will not provide treatment for alcoholics, but will concentrate on the support of research, training, and control programs.

"We realize that a program of this kind cannot stand alone. It needs widespread public understanding and support. We will work with organizations and institutions already making great contributions to the prevention and control of alcoholism. Our objective, in brief, is to mobilize public and professional efforts on the scale necessary to overcome the blight of alcoholism."

PHYSICIAN MANPOWER: FOREIGN LICENTIATES

Physician manpower in the U.S. has been materially augmented in recent years by the licensure of graduates of medical schools located in countries other than the U.S. and Canada. In the early 1930's, less than 200 foreign medical graduates were examined annually by state medical licensing boards. The number examined increased steadily in the late 1930's, reaching a pre-

war peak of 2,088 in 1940 that was followed by decreases during the war years to a low of 475 in 1945. Annual increases in the postwar years reached a peak in 1964 of 3,246 examinations taken by foreign medical graduates. These figures relate to the total number of examinations and include those taking examinations in more than one state.

Figure 1 depicts the number of licensing examinations taken by foreign medical graduates for the years 1930 to 1965 and the number of foreign medical graduates licensed (first time additions to the U.S. medical profession excluding residents holding temporary licenses) in the years 1950 to 1965 as reported in the State Board Numbers of the *Journal of the American Medical Association*.

FOREIGN MEDICAL GRADUATES TAKING LICENSING EXAMINATIONS 1930-65 AND THOSE BECOMING LICENSED 1950-65

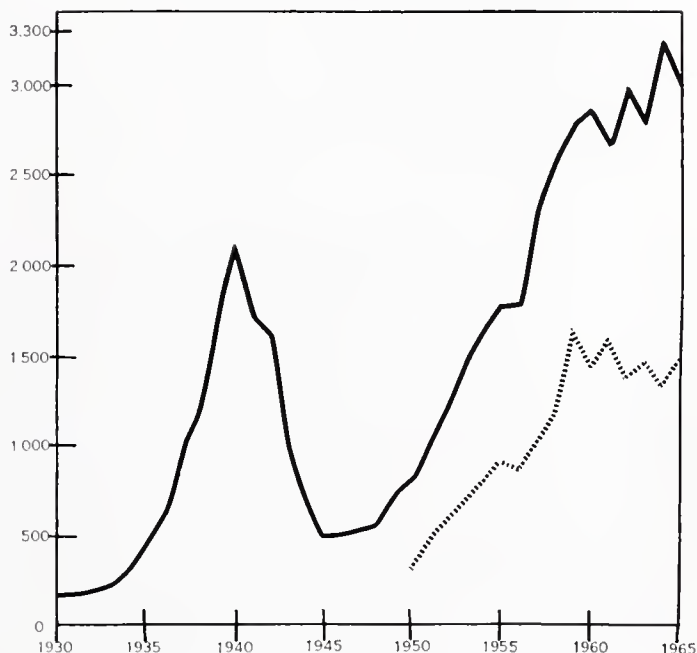


Figure 1

In 1950, 308 foreign medical graduates who had not been previously licensed in the United States received licenses to practice medicine; these constituted 5.1 per cent of all new licenses granted. In the peak year of 1959, the licensing of 1,626 foreign medical graduates accounted for 19.7 per cent of all new licentiates. In each subsequent year, more than 1,300 foreign licentiates have accounted for an average of 17 per cent of all new licentiates.

The 1,488 foreign medical graduates licensed in 1965 represent a nearly fivefold increase over the number of foreign licentiates in 1950. In the

same time span, the number of licentiates trained in the United States and Canada had increased by less than one-third.

Table 1 lists the total number of new U.S. medical licentiates in the years 1950 to 1965, showing the number trained in the United States or Canada, the number trained in other countries, and the percentage of new medical licentiates represented by foreign graduates.

Table 1

NUMBER AND PERCENTAGE OF TOTAL NEW ADDITIONS TO THE U.S. MEDICAL PROFESSION REPRESENTED BY FOREIGN MEDICAL GRADUATES 1950-65

Year	New U.S. and Canadian-trained Licentiates	New Foreign-trained Medical Licentiates	Total New Medical Licentiates	% of New Medical Licentiates Attributable to Foreign trained M.D.s
1950	5,694	308	6,002	5.1
1951	5,823	450	6,273	7.2
1952	6,316	569	6,885	8.3
1953	6,591	685	7,276	9.4
1954	7,145	772	7,917	9.8
1955	6,830	907	7,737	11.7
1956	6,611	852	7,463	11.4
1957	6,441	1,014	7,455	13.6
1958	6,643	1,166	7,809	14.9
1959	6,643	1,626	8,269	19.7
1960	6,611	1,419	8,030	17.7
1961	6,443	1,580	8,023	19.7
1962	6,648	1,357	8,005	17.0
1963	6,832	1,451	8,283	17.5
1964	6,605	1,306	7,911	16.5
1965	7,455	1,488	8,943	16.6
Total	105,331	16,950	122,281	13.9

Source: AMA Council on Medical Education.

No. 3201-38

In 1965 foreign medical graduates received first-time licenses to practice medicine in 40 states. Seven states issued licenses to only one foreign medical graduate, whereas one state licensed 312. In 19 states licensing 25 or more foreign medical graduates in 1965, the percentage of the total number of state licenses that were issued to foreign graduates ranged from 3 to 70 per cent. It is not clear what proportion of the foreign medical graduates are U.S. citizens, but it has been estimated that some 300 U.S. citizens annually seek to enter internship programs in the U.S. on the basis of credentials obtained at foreign institutions. The 1,488 foreign medical graduates licensed in 1965 (17 per cent of total) represent an output equivalent to more than 15 additional U.S. schools of medicine. Thus, if the U.S. were to attempt to provide the entire number of new physicians now being licensed annually, it would require nearly a 20 per cent expansion in medical education facilities.

Foreign medical graduates serving as house officers in U.S. hospitals provide a further source of physician manpower that will be examined in the next issue of Datagrams.

Submitted by the Division of Operational Studies.



O B I T U A R Y

Dr. Byron Alexander Bennett

Dr. Byron A. Bennett of Little Rock died November 4, 1966, at the age of 69. He was born in Roseville, son of the late William Horace and Mary Wood Bennett. He was a graduate of the University of Arkansas School of Medicine and was a former staff member of the Arkansas State Hospital. He was a member of the First Presbyterian Church and was an elder. He was a member of the Paris Masonic Lodge 378 at Paris, Hugh de Payen Commandery 1 and the Knights Templar. He was a board member of the Goodwill Industries of Arkansas, a member of the Kiwanis Club and a former member of the Shrine. He was a veteran of World War I, during which he served with the Motor Transportation Service, and World War II, in which he was a lieutenant colonel in the Medical Corps. He was a member of the Pulaski County Medical Society, the Arkansas Medical Society and the American Medical Association. Surviving is his widow.

Dr. Charles Adna Smith, III

Dr. Charles A. Smith, III, died October 11, 1966, in St. Louis, Missouri, where he had undergone surgery. He was born July 14, 1931, and was graduated from Choate Preparatory School in Wallingford, Connecticut, and Vanderbilt University, Nashville, Tennessee. After being graduated from the University of Arkansas Medical School in Little Rock, he served two years in the U. S. Army, where he held the rank of captain. After leaving the Army, he served four years residency at University Hospital in Little Rock. He was in private practice in Little Rock at the time of his death. Surviving are his widow and three children and his parents, Dr. and Mrs. C. A. Smith of Texarkana.

Dr. Franklin M. Duckworth

Dr. F. M. Duckworth, 93 year old Siloam Springs physician, died October 14, 1966. He was born on June 30, 1873 in Hico, now Siloam Springs, Arkansas. He was the son of Mr. and Mrs. Lafayette (Gunter) Duckworth, early pioneer

Family of Siloam Springs. He was a member of the Masonic Lodge and was a Deacon and Elder of the Presbyterian Church. Dr. Duckworth graduated from the University of Arkansas and the Washington University School of Medicine in 1897. He did his post-graduate work at Tulane University and Columbia University. He was a member of the Benton County Medical Society, the Arkansas Medical Society and the American Medical Association. He started his medical career in 1897 at Claremore, Oklahoma, moving to the Siloam Springs area in 1907 where he practiced until his retirement in 1955. He is survived by his widow, one son and one daughter.

Dr. William Earl Hamil

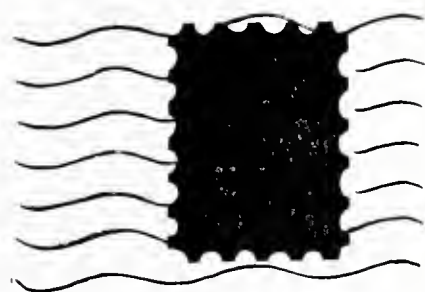
Dr. W. E. Hamil, Pocahontas' oldest native and a prominent physician in Pocahontas for sixty-five years, died November 2, 1966 at the age of 87. Born in Pocahontas June 12, 1879, he was the son of the late Robert Newton and Blanche Kibbler Hamil. His father was a prominent merchant at the turn of the century and his mother was a descendant of one of the town's pioneer families. After graduating from Valparaiso, Indiana University, shortly after 1895, at which time he received his BS Degree and a Degree in Pharmacy, he began general medical practice in Pocahontas in 1901, continuing for eighteen years, at which time he entered the Chicago Eye, Ear, Nose and Throat Medical School for specialized training, later studying in this special field in New York City. He had specialized in eye, ear, nose and throat treatment and surgery in Pocahontas for some forty-five years, and was quite active until recent months. He was a 32nd Degree Mason, a Shriner, a Past Patron of the Order of Eastern Star, past president of the Randolph County Medical Society, Randolph County's first Health Officer, past president of the Doctors' Fifty Year Club of the Arkansas Medical Society. He had served as a delegate and an alternate to many national Democratic and Republican conventions. Dr. Hamil is survived by his widow and two daughters.

Dr. James Ellis Cox

Dr. J. E. Cox, aged 87, of Prescott died November 7, 1966. Born August 11, 1879 near Prescott, he was a member of the First Baptist Church and a 32nd Degree Mason. He attended the University of the South, Sewanee, Tennessee, Memphis

Hospital Medical College, (now University of Tennessee) Memphis, and the University of Arkansas. He began practicing medicine in April, 1902. Since then he has delivered about 4,000 babies; he delivered one after he was eighty-three years old. He was an honorary member of the Arkansas Medical Society, the American Medical Association, and the Nevada County Medical Society and was a past president of the county society. In 1952, Dr. Cox, along with Dr. Al Buchanan, (now deceased) celebrated fifty years of practicing medicine at a banquet given by Dr. Cox for members of the county society and their wives. Survivors include his widow, three sons and four daughters.

L E T T E R S



T O T H E E D I T O R

Alfred Kahn, Jr., M. D.

Editor

Journal of the Arkansas Medical Society

1300 West 6th Street

Little Rock, Arkansas 72201

Dear Dr. Kahn:

The Department of Pediatrics, University of Texas Medical Branch in conjunction with the Division of Maternal Child Health of the Texas State Department of Health, will hold its annual Postgraduate Course in Pediatrics in Galveston, Texas, on February 16, 17, and 18, 1967.

The speakers will be:

Carroll F. Burgoon, Jr., M.D., Professor of Dermatology Temple University Medical School, Philadelphia, Pennsylvania

Keith N. Drummond, M.D., Montreal Children's Hospital, Montreal, Quebec

Albert B. Ferguson, Jr., M.D., Professor of Orthopedic Surgery, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania

Thomas K. Oliver, Jr., M.D., Professor of Pediatrics, University of Washington School of Medicine, Seattle, Washington

P. A. Ongley, M.D., Division of Pediatric Cardiology, Mayo Clinic, Rochester, Minnesota

Registration Fee: \$15.00. Information may be obtained by writing to: M. M. Nichols, M.D., Chairman, Postgraduate Committee, Department of Pediatrics, University of Texas Medical Branch, Galveston, Texas.

THINGS



TO COME

A continuation course in "Clinical Electroencephalography" will be conducted on June 5-7, 1967 in Philadelphia, Pennsylvania. This is the second course sponsored by the American EEG Society (aided by a grant from the Bureau of State Services, U.S.P.H.S.) and is designed for physicians who have had little or no formal EEG training. Inquiries about further details of the course and registration procedure should be addressed to Dr. Donald W. Klass, EEG Course Director, Mayo Clinic, Rochester, Minnesota.

The 14th Annual Meeting of the Mid-Central States Orthopaedic Society will be held in Kansas City, Missouri, May 11-13, 1967, at the Sheraton-Prom Motel, Dr. Paul W. Meyer, President, presiding.

Region VIII of the American Academy of Orthopaedic Surgeons has accepted an invitation to hold their general meeting in conjunction with that of the Mid-Central States group.

"The IV Panamerican Congress of Rheumatology is going to be held in Mexico City from the 22nd to the 26th of October 1967. For further information you can contact the General Secretary, Dr. Gabor Katona, in Ave. Cuauhtemoc 300, Mexico 7, D. F., Mexico."

Diagnostic Procedure in Primary Amenorrhea

H. Kumschick and G. A. Hauser (Frauenklinik des Kantonsspitals, Lucerne, Switzerland) *Schweiz Med Wschr* 96:1055-1064 (Aug 20) 1966

In view of the average menarche age of 14.3 years—as compared with 17.6 years at the beginning of this century—primary amenorrhea must be diagnosed if the menarche has not occurred by the age of 18 years. In 101 patients with primary amenorrhea, gonadal hyperplasia (26%) and gonadal dysgenesis (24%) were found most frequently and in approximately equal proportions. Third in order of importance were the cases with Mayer-Rokitanski-Kuster syndrome (22%), followed by the less numerous cases with testicular feminization (12%), adrenogenital syndrome with congenital hyperplasia of the suprarenal gland (6%), and gynatresia (9%). A rational examination procedure is suggested and the symptomatology of the 101 patients demonstrated on the basis of this method.

Experimentally Produced Tremor

F. A. Mettler (630 W 168th St, New York) *Arch Neurol* 15:241-246 (Sept) 1966

Experimental tremor of the parkinsonian type, produced by surgical means generally undergoes a temporal course in which the tremor becomes progressively more pronounced and then disappears. The provocative lesion is placed in the ventromedial mesencephalic tegmentum and is generally accompanied by degeneration of the substantia nigra on the same side. Degeneration of the nigra cannot, however, be regarded as directly related to the tremor because the nigra remains permanently degenerated, whereas the animal recovers from the tremor and exhibits excellent motor function in the previously affected



CORRECTION

On page 246 of the November issue of the Journal of the Arkansas Medical Society, it was erroneously stated that Dr. Richard K. Lovell "... completed a surgery and obstetrics-gynecology residency in 1966." This statement should have been "... completed a period of residency training in surgery and obstetrics-gynecology in 1966."



PERSONAL AND NEWS ITEMS

Dr. Ellis in Boston

Dr. C. R. Ellis of Malvern attended the Annual Scientific Assembly of the American Academy of General Practice in Boston in October.

Dr. Ozment Is Speaker

Dr. L. V. Ozment of Camden spoke on the subject "Prevention of Heart Attacks" at a meeting of the Camden Lions Club in October. The talk was a feature of Community Health Week at the club.

Dr. Ketz Honored

Dr. Wesley Ketz was the subject of a resolution adopted by the Batesville School Board in October. The resolution expressed gratitude to Dr. Ketz for his long service on the Board. The Batesville physician recently retired from the Board after nearly ten years of service.

Nurses Hear Dr. Lewis

Dr. Ronald M. Lewis, El Dorado anesthesiologist, addressed a meeting of the Licensed Practical Nurses at Warner Brown School of Nursing in October. His subject was "Postanesthetic Recovery of the Surgical Patient".

Dr. Robins Praised

Dr. R. B. Robins of Chicago, formerly of Camden, has recently received high compliments from civic leaders of Chicago for his efforts to obtain a federal grant to establish an outpatient medical clinic in the Puerto Rican neighborhood of Chicago.

Dr. Bailey Speaks in Chicago

Dr. Ted Bailey was on the program at the American Academy of Eye, Ear, Nose and Throat Physicians at the annual meeting in Chicago, October 16-21, 1966. Dr. Bailey was one of a three member Cine-Panel, dealing with problems in middle ear surgery. The moderator was Dr. Howard House of Los Angeles and other members of the panel were Dr. George Shambaugh, Chicago and Dr. Miles Lewis, New Orleans.

Dr. Hall Is Chairman

Dr. Billy V. Hall of Gravette was the Benton County Chairman for the 1966 Christmas Seal campaign.

Scott and White Meeting Announced

The Scott and White Conference in Medicine and Surgery, Fifteenth Annual Meeting, will be held February 19, 20, 21, 1967, at the Elk's Club, 2613 Airport Road, Temple, Texas. Guest speakers for the scientific program will be Dr. Denton A. Cooley, Professor of Surgery, Baylor University College of Medicine, Houston, Texas, and Dr. S. Gilbert Blount, Jr., Professor of Medicine, Head of the Division of Cardiology, University of Colorado Medical Center, Denver, Colorado. The after-dinner speaker will be Mr. George Jessel, entertainer, Hollywood, California. For further information, write to: Per H. Langsjoen, M.D., Chairman, Post-graduate Conference Committee, Scott and White Clinic, Temple, Texas 76501.

Dr. Howard Is President-elect

Dr. John Howard, clinical professor of psychiatry at the University of Arkansas Medical Center, was named president-elect of the Mid-Continent Psychiatric Association at a recent meeting at Topeka, Kansas.

Cotter Seeks Doctor

Citizens of Cotter held a public meeting in October to hear a spokesman for the Sears-Roebuck Foundation discuss the possibility of building a clinic to help attract a physician to the community.

Dr. Allen Is Speaker

Dr. John Allen, Little Rock heart surgeon, was guest speaker at an October meeting of the Batesville Kiwanis Club. Dr. Allen's subject was "The Heart", with emphasis on valve replacements.

Dr. Arrington Opens Office

Dr. T. S. Arrington, dermatologist, opened his office at 2508 West 28th Avenue in Pine Bluff in October. He formerly practiced at North Little Rock.

Reception Honors Dr. Scully

A reception for Dr. Francis J. Scully of Hot Springs, author of a recently published historical encyclopedia of Hot Springs, was held in November in Hot Springs. The affair was sponsored by the Garland County Historical Society, the Hot Springs of Arkansas Chapter, Daughters of the American Revolution and the John Perciful Chapter, Daughters of the American Revolution.

Dr. Gray Honored Posthumously

Pulaski County Medical Assistants Society honored the late Dr. Herschell F. Gray with a posthumous "Boss of the Year" award at its recent banquet. Dr. Millard Black, 1965 "Boss of the Year", presented the plaque to Dr. Gray's son, Dr. Herschell F. Gray, Jr.

Dr. Stanley Is Appointed

Dr. Joe Pat Stanley, chief of staff of Memorial Hospital in North Little Rock and a partner in the Stanley-Harper-Harris Diagnostic Clinic, has been appointed to the board of directors of Viking Corporation and Paragon Life Insurance Company of North Little Rock.

New Program for Arthritics

A new program for arthritis victims was introduced by the Arkansas Chapter of the Arthritis Foundation to the physicians of Craighead, Greene and Clay counties at a meeting at the St. Bernard Hospital at Jonesboro in October. Representing the Arkansas Chapter of the Arthritis Foundation at the meeting were: Dr. Louis L. Sanders of Little Rock Veterans Administration Hospital; Dr. S. William Ross, Little Rock Diagnostic Clinic; Charles Lee Smith, chief physical therapist of the Arkansas Chapter; Wayne Fortson, associate physical therapist, and Don Riggins, executive director. The new program is aimed at extending out-of-hospital care to arthritis victims in the home.

Dr. McNichol Speaks at Meeting

Dr. Ronald W. McNichol, director of the Alcoholic Treatment Service of Benton and a member of the faculty of the University of Arkansas Medical School, spoke at a meeting in Fayetteville in October. His topic was "Alcoholism—How the Lay Person Can Help With the Problem". The talk was sponsored by the Washington County Mental Health Association. Dr. Nancy Rabon of Fayetteville is chairman of the program committee.



PROCEEDINGS OF SOCIETIES

Ouachita

Dr. Joe Ellis of Camden, President of the Ouachita County Medical Society, was present at the signing of a proclamation designating the week of Sunday, October 16th as Community Health Week in Camden.

Pulaski

The Pulaski County Medical Society sponsored Diabetes Week, November 13-19 in Pulaski County. This provides every person in Pulaski County with the opportunity to obtain a free test for diabetes. Dr. Joseph D. Calhoun is President of Pulaski County Medical Society and Dr. George Mitchell is chairman of the society's Diabetes Week Committee.

Arkansas Baptist Medical Center

Dr. G. Grimsley Graham has been elected chief of staff of the Arkansas Baptist Medical Center in Little Rock for 1967, and Dr. H. A. Ted Bailey is vice chief. Others elected were Dr. Joe B. Scruggs, secretary, and Dr. Carl E. Wenger, chief of staff elect.

Lafayette County Memorial

The following officers of the medical staff of the Lafayette County Memorial Hospital in Lewisville were announced for 1967: Dr. Robert W. Hunter, president; Dr. W. J. Lee, vice president; and Dr. Charles Cross, secretary-treasurer.



BOOK REVIEWS

CLINICAL MANAGEMENT OF BEHAVIOR DISORDERS IN CHILDREN, by Harry Bakwin, M.D. and Ruth Morris Bakwin, M.D., published by W. B. Saunders Company, Philadelphia and London.

This text on behavior problems in children is well edited and thorough. It is of interest to the General Practitioner and the Pediatrician.



Sponsored by Arkansas Tuberculosis Association

OPPORTUNISTIC PULMONARY INFECTIONS

Diabetes mellitus is one of the principal diseases predisposing to infections of the lung by unusual organisms, particularly fungi, which are on the increase. Representatives of various disciplines discussed the problem at a recent interdepartmental conference at UCLA.

Opportunistic infections may be extremely complex clinically because they represent the interaction of infection with a variety of unusual organisms superimposed on a variable underlying disease. There is definite evidence that the prevalence of opportunistic pulmonary infections is increasing. Fungus and other disorders that are commonly involved will be considered in particular here.

Diseases notorious for predisposing to opportunistic infections are diabetes mellitus, leukemia, lymphoma, cancer, and aplastic anemia. Concomitants of these disorders such as quantitative and qualitative protein deficiencies and granulocytopenia also have been shown to potentiate and predispose to multiple infections. Perhaps of greater importance is the modification of the patient's ability to resist infection by X-ray therapy, steroids, and a variety of antineoplastic drugs and antibiotics. In addition, the deliberate suppression of immunity to favor transplanted organ survival has introduced a variety of remarkable infections.

HOST RESISTANCE FACTORS

Of the mechanisms that have been suspected as bearing on overt disease when it occurs, either opportunistically or in ailments not ordinarily considered opportunistic, the first major line of defense is the skin. The next is the system of mucosal surfaces and their secretions. The third is the system of cells and tissues comprising the reticuloendothelial system.

The reticuloendothelial system is influenced by a fourth, the pituitary-adrenal system which, chiefly through the corticosteroids, influences mechanisms important in predisposing to infection. In view of the relationship among the thymus, the spleen, and the entire antibody-producing system, corticoid-induced impairment of specific antibody response and other immunosuppressive drugs might be expected to play a key role in opportunistic infections.

PNEUMOCYTIS, CYTOMEGALOVIRUS

These two "pediatric" diseases are being seen more frequently in debilitated adults who come to resemble infants immunologically.

Pneumocystis carinii pneumonia usually occurs in infants between six weeks and six months of age. The infants are debilitated, have a disease such as diarrhea, hypogammaglobulinemia, or leukemia, or have received steroid or immunosuppressive therapy. Dyspnea is accompanied by cyanosis, intercostal retraction, and sometimes periods of dry cough. Roentgenograms show a bilateral bronchopneumonia with generalized, localized, and interstitial emphysema.

The organism has not been classified with certainty. Some regard it as a protozoan, others as a yeast-like fungus. Attempts should be made to diagnose the infection during life since effective treatment (pentamidine isothionate) is available.

Cytomegalic inclusion disease, or salivary gland virus disease, may appear as an overwhelming congenital or neonatal infection; an inapparent infection, especially of the salivary glands; a secondary infection in older children and adults with leukemia, lymphoma, renal transplantation, or some chronic debilitating disease; or, rarely, as a localized granuloma involving the gastrointestinal tract or a bronchus.

The virus is a DNA virus of the herpes group. The nuclear inclusion may develop in three to five days and contains a DNA core surrounded by a single layer or capsule of viral specific protein. When it passes into the cytoplasm it acquires

JOHN F. MURRAY, M.D.; HUGH F. HAEGTIN, M.D.; WILLIAM L. HEWITT, M.D.; HARRISON LATTA, M.D.; DAVID McVICKAR, M.D.; A. F. RASMUSSEN, JR., M.D.; and LEO G. RIGLER, M.D., *Annals of Internal Medicine*, September, 1966.

a second outer coat.

NOCARDIOSIS AND ASPERGILLOSIS

Nocardiosis and aspergillosis demonstrate some of the perplexing clinical problems in the spectrum of the opportunistic fungus infections. They may be the sole cause of death in patients whose underlying disease is well controlled and not life-threatening. However, effective therapy is available for both infections but early diagnosis is essential.

Nocardiosis and aspergillosis are rarely primary infections. Under favorable clinical circumstances both organisms may have enhanced virulence and produce severe infections, mostly involving the lungs.

The secondary variety of nocardiosis, like the primary, usually begins in the lungs, is locally invasive, and commonly spreads to the central nervous system when extrapulmonary dissemination occurs.

Sulfonamides are the most effective chemotherapeutic agents in the treatment of nocardiosis. In seriously ill patients, it would seem prudent also to give an additional drug such as tetracycline.

The diagnosis of aspergillosis is more tenuous than that of nocardiosis when based on the isolation of the causative organisms in the laboratory since *Aspergillus* is a frequent contaminant. All three varieties of secondary aspergillosis (localized, invasive, and disseminated) are being seen with increasing frequency, and usually involve the lung.

Although the prognosis in secondary aspergillosis is usually dictated by the underlying disease, all patients with significant signs and symptoms of active infection should be treated with amphotericin B. Pulmonary mycetomas are best treated by resection, and the use of amphotericin B for pre- and postoperative coverage should be considered.

MUCORMYCOSIS AND CANDIDIASIS

Pulmonary candidiasis takes two forms. One is a mild recurrent bronchopulmonary infection with persistent cough and sputum containing large numbers of budding yeast cells and pseudomycelia. More extensive disease may appear radiologically as pneumonia with consolidation and varying degrees of pleural reaction or as a miliary type of pulmonary infiltration consistent with blood stream dissemination.

The fungus responsible for mucormycosis oc-

curs widely in soil. The possibility of a mycosis, particularly mucormycosis, should be considered in any instance of inflammatory disease involving the paranasal sinuses or orbit, especially in a patient with uncontrolled diabetes mellitus. In patients with leukemia or lymphoma, mucormycosis tends to involve the lungs rather than the nasopharynx.

Control of the underlying disease remains the most important factor for improvement in these infections.



Plasma Renin Concentration in Human Hypertension: Relation to Treatment and Prognosis

J. J. Brown et al (St. Mary's Hosp, London) *Brit Med J* 2:268-270 (July) 30 1966

Plasma renin concentration in hypertension was studied in relation to treatment. The highest initial plasma renin concentrations were found in the hypertensive syndrome characterized by hyponatremia, the malignant phase, a renal arterial or renal parenchymal lesion, hyperaldosteronism, and, frequently, hypokalemia. The raised plasma renin concentration returned to normal with correction of the plasma sodium following either surgical treatment of a renal lesion, or the use of hypotensive drugs. This suggests that renin fell because sodium was raised by treatment in these patients. In other cases of malignant hypertension, where sodium and renin were initially normal, renin concentration remained normal after treatment unless sodium was lowered by diuretics, when renin rose. In primary aldosteronism with hypernatremia, the low plasma renin concentration could be returned to normal either by removal of an adrenal tumor or by spironolactone therapy, each of which also corrected plasma sodium. Thiazides or spironolactone, which caused sodium loss, led to corresponding increases in plasma renin, irrespective of the etiology of the hypertension.

February, 1967

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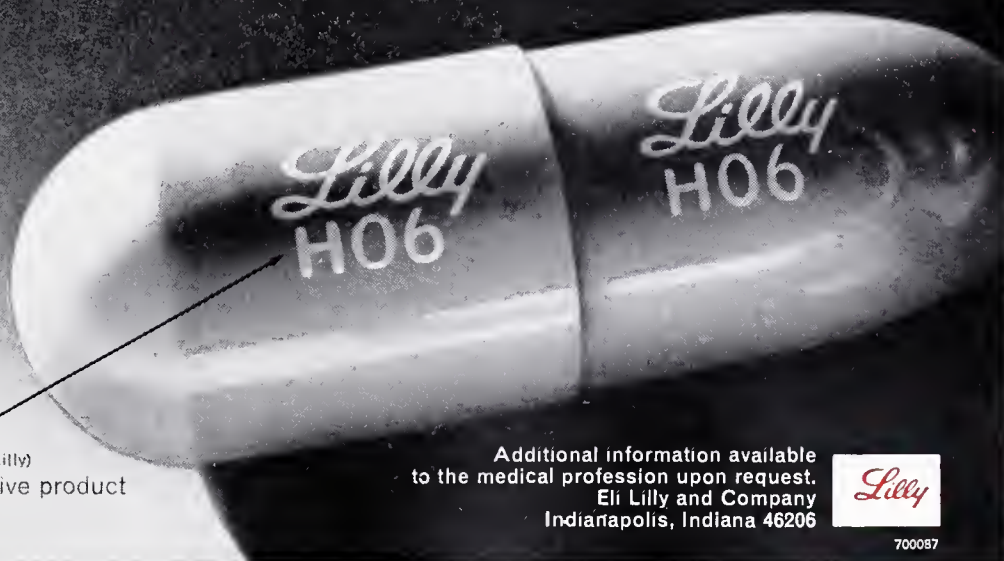
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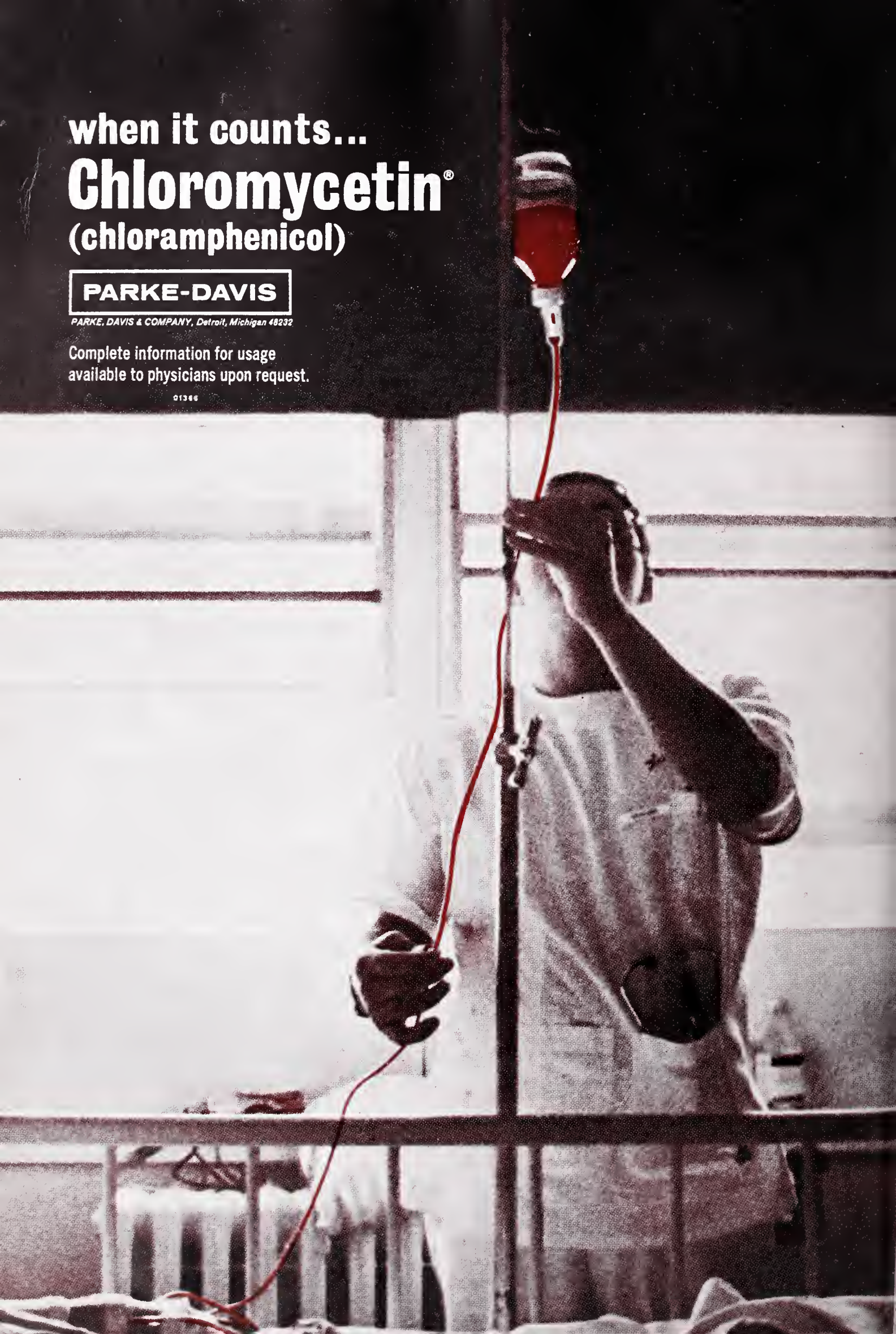
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The Pathophysiology of Azotemic Anemia

William F. Denny, M.D.* and William J. Flanigan, M.D.**

Presented at the Annual Oklahoma-Arkansas Regional Meeting,
American College of Physicians, September 10, 1966.

Significant anemia is usually a late accompaniment of renal disease, but once evident is often of moderate to severe degree and usually unrelieved in its progression. During the early stages of renal insufficiency, when urea retention is minimal or variable, serious anemia is not usual; but as sustained azotemia ensues, anemia becomes manifest and correlates roughly with the degree of azotemia. Almost all patients with blood urea nitrogen levels consistently over 50 mg% will have anemia to a definite degree.

Recent advances in our knowledge of the physiology of erythropoiesis have assigned a role of importance to the kidney in the regulation of the normal red cell mass.¹ In view of this, study of patients with chronic renal disease has helped in furthering our understanding of the control of blood production.^{2,3}

HEMATOLOGIC FEATURES:

The primary effect of prolonged azotemia is on the red cell elements, and only rarely are there abnormalities of the leukocytes or platelets. The red cells vary somewhat in size and shape but are predominantly normochromic and normocytic by cell indices and microscopic morphology. Polychromatophilia is minimal, reflecting the usual low absolute reticulocyte level. This standard morphologic characterization is often altered when malignant hypertension is present or during acute renal failure when red cell fragmentation, "burr" cells, and marked anisocytosis and poikilocytosis is noted. When this occurs, there may be a minimal to moderate reticulocytosis, particularly in the more fulminant cases and those of recent rapid progression. These findings of in-

creased erythropoietic response are unusual in the terminal chronically azotemic patient.

The bone marrow presents no unusual morphologic findings.^{4,5} It has been described both as normocellular and hypocellular; the erythroid elements as increased and as decreased. But whatever the morphologic appearance, it is unable to produce enough erythrocytes to support a normal red cell mass and anemia ensues.

The red cells are normally resistant to osmotic lysis and do not show increased autohemolysis. No consistent biochemical abnormalities have been described, and when isotopically "tagged" red cells from uremic patients are transfused into normal individuals, they survive for a normal length of time. When erythrocyte survival is measured in the azotemic individual, variable results are obtained. Many will again show a normal survival time, but a definite number will have modest reduction in the red cell survival, indicating an as yet undefined extra-corporeal factor inducing hemolysis. The Coombs test, however, is negative and there is no evidence of cold, warm, or acid serum agglutinins or hemolysins. The nature of this extracorporeal factor is not established but may well be related to the vascular lesions of the kidney as reported in the "hemolytic-uremic" syndrome, reported by Gasser and by Brain. Despite these evidences of an occasionally shortened red cell survival time, the primary defect in the anemia of chronic renal disease is a failure of the marrow to accelerate blood production in response to the reduced red cell mass.

The strongest evidence that marrow failure is the prime factor in the anemia of azotemia is the direct clinical evidence of anemia without an increase of erythropoietic effort. Quantitation of depressed red cell formation is difficult to obtain and the most accurate methods are those utilizing radioactive labeled iron. It is known that in the

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This work was supported in part by Research Grant FR-49, National Institutes of Health, U.S.P.H.S.

normal individual transferrin bound iron is rapidly cleared from the plasma and localizes in the bone marrow where it is selectively utilized for new red cell formation. Within two weeks of injection nearly 100% of the iron appears in the peripheral blood in the hemoglobin of newly formed red cells. Definite differences in these ferrokinetic measurements are noted in the anemia of uremia. (Fig. 1 and 2) In this situation

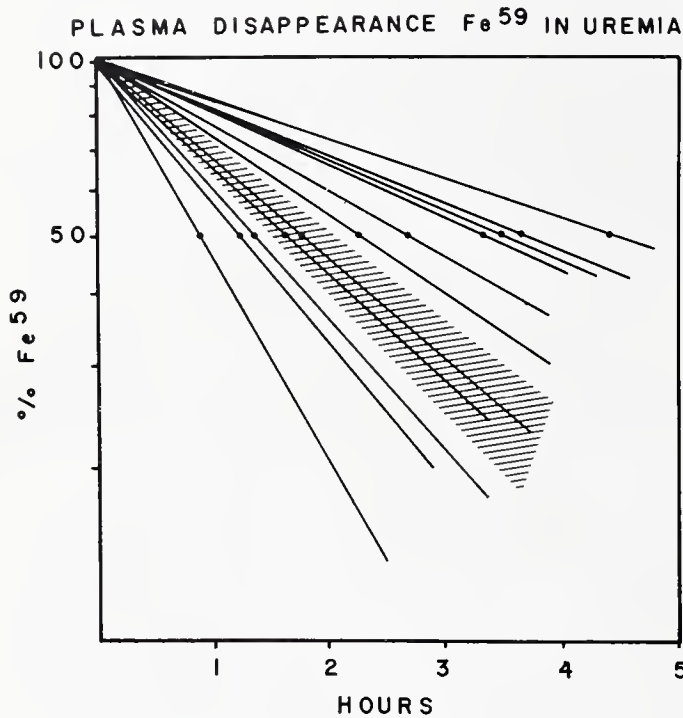


FIGURE 1 Shows the T/2 clearance of radioactive iron from 11 patients with chronic azotemic anemia.

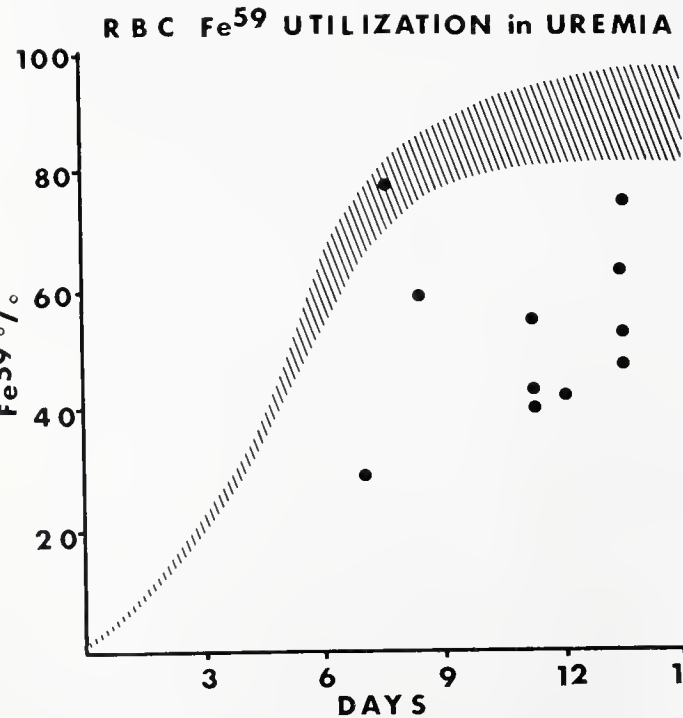


FIGURE 2 Shows the reappearance of injected radioactive iron in the peripheral blood of 11 patients with chronic azotemic anemia.

the serum iron is often reduced somewhat and the clearance from the plasma is either normal or prolonged. This, coupled with a distinctly reduced utilization of the iron into new red cells, indicates a reduction of total erythropoietic effort which is all the more significant since it occurs in the anemic individual who normally would accelerate production to regain normal blood values (Table 1). There may be a small and transient improve-

TABLE 1. Ferrokinetic Data in Azotemic Anemia.		
Test	Normals	Azotemic (11)
Hematocrit (%)	45	25.3
BUN (mg%)	< 18	101
T/2 plasma Fe ⁵⁹ (hrs)	1.5-2.0	2.47
RBC Fe ⁵⁹ utilization (%)	> 80	53.1
Plasma iron transport (mg/d)	25-35	17.90
Plasma iron transport (mg/kg)	> 0.35	0.30
Serum iron (μg%)	60-160	82
Daily hemoglobin production (%)	0.83	0.77
ESF assay (% Fe ⁵⁹)	0.45±.02	0.34±.01
Absolute reticulocyte/mm ³	> 50,000	27,000

ment in the total iron clearance and red cell production after effective dialysis treatment of the uremic syndrome has been carried out, but even with chronic dialysis, serious anemia is evident and transfusions are usually required for maintenance of function. The only really successful method of correcting the anemia is by restoration of renal function by renal transplant.⁶ This, when successful, is followed by return of normal marrow production and correction of the anemia. Hematologic recovery usually lags behind recovery of the more conventional parameters of renal function and there may be an interval as long as six weeks before reticulocytosis and measurable erythropoietin can be found.

KIDNEY AND ERYTHROPOIETIN STIMULATION:

The question as to why there should be a failure of blood production in renal failure has been

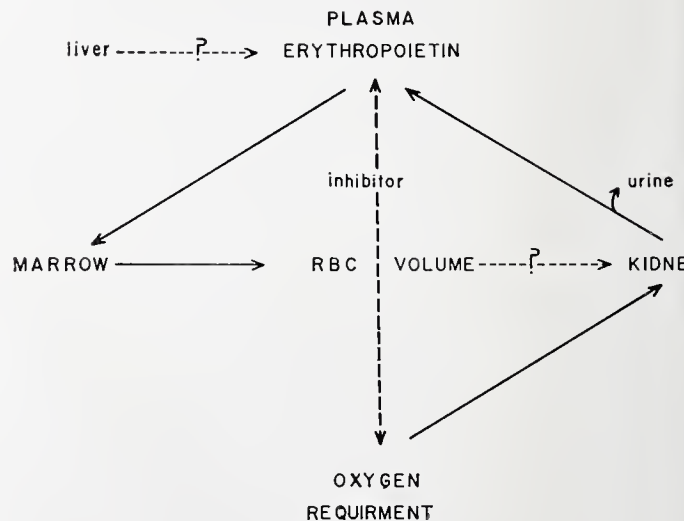


FIGURE 3 Is an illustration showing the present concepts of erythropoietin production and mechanism of action.

largely answered in recent years. In a wide variety of experimental studies as well as in comparable clinical situations, the presence of a humoral agent involved in stimulation of erythropoiesis has been documented. (Fig. 3) Increased amounts of this substance called *erythropoietin* have been found in anemias of diverse etiology and can regularly be generated in experimental animals by such things as hypoxia, hemorrhage, and cobalt administration. The highest levels which have been described in clinical situations seem to be in conditions of proven bone marrow failure, i.e., aplastic anemia, myelofibrosis, or in conditions of functional marrow failure such as ineffective erythropoiesis. One clear exception to this was soon noted when observers commented on the regular absence of this humoral substance in severely anemic uremic patients.^{2,3}

Studies supporting the production of erythropoietin by the kidney, its absence in severe parenchymal insufficiency of the kidney, and the observation of an occasional case of polycythemia in a variety of renal diseases,^{7,8} have led most investigators to feel that the kidney is the major site of production of this material so important to stimulation of erythropoiesis. A serious handicap in the study of this humoral agent has been the necessity to rely on bioassays for its measurement, which to date have proven sensitive only to elevations above normal amounts. No reliable method has yet been developed for the detection of normal quantities of erythropoietin in the plasma unless unusual concentrations or purification procedures are applied. Recent studies by Gordon and associates have suggested that erythropoietin may consist of an active and inactive form, with the inactive form requiring a plasma factor for activation.

CLINICAL PROBLEM:

The chronically azotemic patient usually begins to develop significant anemia as his blood urea nitrogen elevations become sustained and the degree of anemia correlates definitely although grossly with the level of urea retention and creatinine clearance. There is also a correlation between the degree of anemia and the red blood cell iron utilization as measured by isotopically labeled iron ferrokinetic studies. Both the anemia and these kinetic changes are reversible when the renal damage is reversible or when successful renal transplantation is carried out.⁶ In the usual case the clinical symptoms and the

prognosis depends far more on the renal disease than on the anemia. When the anemia becomes moderately severe, however, it usually contributes greatly to the symptoms of the patient and may well be a limiting factor in his ability to carry out normal activities. In considering therapy directed at the anemia, it is important to exclude other contributing factors to the anemia such as occult or significant gastrointestinal bleeding, iron deficiency, or the fragmentation syndrome associated with accelerated malignant hypertension which may be partially reversible by control of the hypertensive state. Judicious use of packed red cell transfusions is indicated, usually to maintain a patient's hematocrit above 25%. Transfusion requirements will vary greatly but seldom will exceed two units of packed cells monthly. It should be pointed out that repeated transfusions add to the iron load of the body tissues and may well have a deleterious effect on liver and bone marrow function. Thus transfusions are not felt indicated unless symptomatology is considerable and not correctable by other means. The use of oral cobaltous chloride has been described as effective in the anemia of chronic renal disease,⁹ but its value as a practical clinical medication is limited by frequent gastrointestinal irritations and by possible toxic effect of cobalt elevations. Massive doses of androgens have been recommended by some investigators since it has been shown to be effective in certain refractory anemias, presumably by stimulating erythropoietin production or by broadening the stem cell pool for differentiation into erythroid elements. Since in the present working hypothesis, anemia is a result of a failure of the renal parenchyma to produce erythropoietin, it is doubted that testosterone would be effective, but adequate clinical investigation of this intriguing possibility has not been carried out.

In summary, the anemia of chronic renal disease would appear to be primarily a failure of the marrow to produce sufficient erythroid elements. The evidence would strongly suggest that this failure is related to insufficient production of erythropoietin, the humoral agent concerned with the regulation of the red cell mass. The kidney appears to be the major if not the only site of production of erythropoietin and the failure of the kidney to produce erythropoietin seems correlated with overall renal function. Unless renal transplantation can be successfully effected, ther-

apy must remain symptomatic with transfusions of packed blood being given as necessary.

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Unbalanced Pulse Deficit and Acute Pulmonary Congestion

A. J. Libanoff and S. Rodbard (City of Hope Medical Center, Duarte, Calif) *Arch Intern Med* 118:158-162 (Aug) 1966

Acute dyspnea observed during cardiac catheterization was examined. In patients with pulmonary vascular congestion secondary to mitral valve disease or subaortic muscular stenosis with only a mild elevation of the pulmonary artery pressure, paroxysms of ectopic ventricular beats produced systemic pulse deficits without pulmonary artery pulse deficits. Unbalanced pulse deficit acutely raised the left atrial pressure. Pulmonary congestion may, therefore, have developed when the right ventricle ejected its contents into the pulmonary artery, while the left ventricle could not generate the higher systemic pressure to initiate ejection into the aorta. A similar pattern may explain transitory episodes of acute pulmonary congestion in ambulatory patients with limited cardiac reserve and with frequent premature ventricular beats. In severe pulmonary hypertension secondary to mitral stenosis or as a primary disease, a series of ectopic beats did not cause a rise in the pulmonary venous pressure or congestion since the bilateral pulse deficit did not lead to acute hemodynamic disbalances.

Virchow's Views on Pathology, Pathological Anatomy, and Cellular Pathology

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From the latter 18th to the middle 19th century, pathology, defined as the study of the causes, nature, and effects of disease processes, was humorally or neurally oriented. Pathological anatomy was regarded as directing attention too exclusively toward the end-products of disease. In the mid-19th century, Virchow called for an experimentally based pathological physiology—cellular pathology—to replace pathologies based on either anatomy or neural and humoral theory. Since technical advances in morphological histology outstripped those in histochemistry in the latter 19th century, Virchow's pathology of the future was developed almost exclusively along morphological lines. Pursued chiefly in the autopsy room with the aid of the microscope, microtome, and aniline dyes, it took the place of the old pathological anatomy and was then subjected to similar criticisms. Cellular pathology in the original Virchowian sense is now the common property of medical investigators, and the judgment of history has left morphological pathology in the hands of academic pathologists.

ENDOMETRIAL BIOPSY — INTERPRETATION

M. R. Abell, M.D., Ph.D.*

Endometrial biopsy by microcurettage offers a relatively simple, accurate, and safe means of assessing the diffuse changes that may be present in the uterine mucosa.^{1,2,3,4,5,6} It is less formidable than formal dilatation and curettage and is a diagnostic, not a therapeutic procedure. The type of curette that is used and the technique of sampling are not as important, at least to the pathologist, as are care in removal and handling of the tissue and proper fixation. One of the drawbacks to the procedure is the failure to obtain any or sufficient material, but in competent hands, an adequate sample is obtained in approximately 90% of patients.

In general, the indications for endometrial biopsy are the same as for diagnostic dilatation and curettage.¹ However, many believe that its greatest usefulness is in the diagnosis of malignant neoplasms of the endometrium. Accuracy in the diagnosis of endometrial carcinoma varies in different series from 76 to 96 per cent. A positive biopsy for carcinoma is significant but a negative result does not rule out the disease and further investigations must be made, particularly if the symptoms suggest that cancer may be present. The procedure is equally applicable to the investigation of dysfunctional uterine bleeding, infertility studies and the assessment of the effect of drugs on the endometrium and its diseases. For these investigations, it is mandatory that the pathologist be supplied with information as to the time in the menstrual cycle when the material was taken.

For the accurate interpretation of endometrial tissues it is essential that both the pathologist and the clinician be fully acquainted with the changes that take place during the normal endometrial cycle. In assessing the stages of the cycle, it is customary to do so on tissues that show the most advanced alterations. Endometrium from the lower uterine segments tends to be somewhat fibrous and to differ from that of the fundus. Endocervical tissues must not be mistaken for endometrium, particularly when they show atypical adenomatous hyperplasia. We have seen such changes in patients on the synthetic progestins misinter-

preted as carcinoma of the uterus. Fragments of tissue from the basal zone of endometrium must not be confused with areas of true hyperplasia.

NORMAL ENDOMETRIUM OF REPRODUCTIVE PERIOD

In the assessment of endometrial tissue, attention is given to three components, namely epithelium, cytogenic stroma, and blood vessels. All three undergo alterations in structure during the menstrual cycle. Mast cells, lymphocytes, and neutrophilic leukocytes are normal components of the endometrium at certain phases. For purposes of diagnostic interpretation, the endometrium is divided into three indistinct zones. The basal zone, the *zona basalis*, consists of a thin layer of unripe endometrium which does not respond completely to hormonal stimulation, particularly not to progesterone. The middle layer of endometrium, the *zona spongiosum*, consists predominantly of glands with a loose vascular stroma. The luminal region is the *zona compactum*, so named because its stroma forms a fairly compact layer beneath the surface epithelium and about the necks of the gland. The compact and spongy zones characteristically respond cyclically to the ovarian hormones and are shed to a large extent during menstruation.

Although there may be considerable variation in the length of menstrual cycles among apparently normal women, for the purposes of diagnostic considerations the normal cycle is 28 days with ovulation occurring at the 14th day.^{7,8,9} Three major phases to the normal cycle are recognized; the *menstrual phase* from day 1 to day 4, the *follicular* or *proliferative phase* from day 5 to day 14, and the luteal or secretory phase from day 15 to day 28.

With the failure of fertilization and implantation of the ovum, a series of vascular changes occur that lead to menstruation with shedding of most of the functional portions of the endometrium. Menstrual endometrium consists of pieces, rarely a cast, of shrunken and fragmented glands and stroma with focal areas of degeneration, necrosis, hemorrhage, and leukocytic infiltration. Menstrual endometrium, however, is in part at least viable. Regeneration occurs almost imme-

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diately and proceeds in some areas as tissue is being shed in others.

The *follicular phase* is characterized by proliferation of both epithelium and stroma under the influence of ovarian estrogens. Early, mid- and late sub-phases can be recognized but their designation serves no practical purpose. Initially the endometrium is thin and the glands scattered, tubular and straight. The stroma consists of fairly small stellate and spindle cells with prominent nuclei. The endometrium soon thickens due to proliferation of both glands and stroma. The glands become larger, curved and the epithelial cells are columnar with frequent normal division figures. Division figures are also readily found in the stromal cells and at mid-phase there is considerable ground substance (edema) present in the stroma. Before ovulation there is a further dilatation and convolution of glands with pseudo-stratification of epithelial cells. Mitotic activity is prominent and just before ovulation there is considerable vascular dilatation, sometimes with scattered petechial hemorrhages.

The changes indicative of the *luteal* or *secretory phase* appear 24 to 48 hours after ovulation and are a result of the effect of progesterone produced by the corpus luteum. The changes that occur during this phase are more prominent than those seen in the follicular phase and their interpretation is of greater importance. Three subphases can be easily recognized, namely the early, mid- and late luteal phases and some workers are capable of estimating the actual day of the cycle with moderate accuracy.

The presence of uniform rows of sharply defined subnuclear vacuoles in the glandular epithelium, particularly in the zona spongiosum indicates that ovulation has occurred recently and ushers in the early luteal phase. Further dilatation and convolution occur in this phase but the stroma remains compact with infrequent division figures. After approximately three days, the subnuclear vacuoles escape around the nuclei, allowing them to return to a more basal position. With the escape of secretions into the lumens, the inner epithelial margins become frayed. This indicates the mid-luteal phase. There is now considerable convolution of glands producing a saw-toothed appearance and pale pink secretions appear in the lumens. Edema of stroma is often marked at this time and the spiral arteries are prominent and coiled in the zona compactum.

In the late luteal or premenstrual phase, the glandular epithelium is shrunken and frayed and the lumens of the glands contain a contracted secretory coagulum. The stromal cells, especially beneath the surface epithelium and about the thickened coiled spiral arteries, become large and eosinophilic indicative of a decidual transformation. Scattered lymphocytes and neutrophils may appear in the stroma just before menstruation.

Before menarche the endometrium is thin with sparse glands and compact cellular stroma. After menopause a variety of endometrial patterns are seen.^{10,11,12} The most common is atrophy with a pale, somewhat fibrous stroma and scattered small and cystic glands. The latter may be quite prominent in some endometria and cause a multicystic appearance, but both epithelium and stroma remain atrophic. In some patients there is continued or excessive estrogen production which causes a cystic glandular and stromal hyperplasia.

ABNORMAL ENDOMETRIAL CYCLES

Anovulatory Endometrial Cycles:

Not all endometrial cycles are accompanied by ovulation.^{13,14} These anovulatory cycles are prone to occur at the beginning and end of the reproductive period and, in some women, particularly those with ovarian hyperplasia, they may form the predominant cycle throughout the reproductive period. The bleeding that occurs may closely resemble normal menstruation but commonly there is some alteration in the amount and duration. Endometrial specimens obtained just before the expected periods fail to show the secretory changes of the luteal phase. They may resemble a late follicular phase, perhaps with a little more proliferative activity or, if estrogen stimulation has been marked or prolonged, the appearance is that of a cystic glandular and stromal hyperplasia.

Irregular or Delayed Shedding of Endometrium:

This condition is attributed to persistent activity of the corpus luteum and hence to continued progesterone stimulation into the menstrual phase.^{15,16,17,18} Clinically there are recurrent cycles with prolonged and excessive menstrual bleeding, accounting for the term chronic menstruation. Histologically, there is incomplete involution and failure of some areas to be shed. The endometrium, taken on the 5th or 6th day of the cycle when shedding normally should have been complete and regeneration occurred, shows a mixed appearance with some early proliferative foci and areas in which there are irregular glands

formed by frayed and vacuolated epithelium, indicative of persistent luteal activity. Many of these glands have star-shaped configurations on cross-section and are surrounded by condensed stroma. The spiral arteries in the non-shed areas remain prominent, thickened and coiled.

Inadequate Secretory Endometrium:

Some workers hold the belief that the endometrium of the luteal phase mirrors the activity of the corpus luteum and that when there is a poor or delayed secretory response it means inadequate corpus luteum function.^{19,20,21,22} Others doubt that the changes are of significance and suggest that they are overrated. In patients in whom this condition has been thought to exist, there were long cycles, oligomenorrhea and sometimes repeated abortions.

If the endometrial specimens are two or more days behind in appearance what is normally expected after known ovulation, the luteal phase is considered deficient. The endometrium is usually sampled on the eighth to tenth day after ovulation or on the first day of the menstrual cycle. In addition to the delayed response, there is also a spotty and poorly developed reaction.

ENDOMETRIAL HYPERPLASIA AND METAPLASIA

Gestational Hyperplasia:

Following fertilization and implantation of ovum, changes occur in glands and stroma of the endometrium that differ from the normal luteal phase. They commence about the 23rd or 24th day of the cycle and are well developed by the 28th day.²³ They consist of an exaggerated convolution of glands with marked secretory changes which exceed anything seen during the non-gestational luteal phase of the cycle. The epithelial cells are swollen with clear or pale eosinophilic cytoplasm and hyperchromatic nuclei. The stroma is edematous, sometimes with pools of pale eosinophilic fluid. Decidual change occurs about vessels in the upper endometrium and is more prominent than that seen in the usual luteal phase. By the time the patient has missed her first period there is a floor of decidual cells forming the compact zone. The changes in gestational hyperplasia are sufficiently characteristic to permit the diagnosis to be made even in the absence of trophoblastic cells.

Sometimes the gestational hyperplasia later in pregnancy becomes quite marked and the epithelial cells are sufficiently atypical that a diagnosis of adenocarcinoma is entertained. These alterations have been referred to as the Arias-

Stella phenomenon and may be seen with either intra- or extrauterine pregnancy, providing viable trophoblastic cells are present.²⁴ The epithelial cells of the endometrium are bloated and have pale cytoplasm, and huge hyperchromatic irregular nuclei. Dividing cells are easily found. The atypicalities can be marked and it is not too surprising that the changes have been mistaken on occasion for carcinoma.

Cystic Glandular and Stromal Hyperplasia:

This is a very common form of hyperplasia attributed to excessive or continuous estrogen stimulation.²⁵ It tends to occur throughout the reproductive period and after the menopause. In some instances there is hyperplasia of ovaries and on rare occasions neoplasms.

The endometrium is irregularly thickened, maybe even polypoid. The tissue is uniform, rubbery, yellow-grey, and on section may have a microcystic appearance. On curettage, abundant tissue is usually obtained. Microscopically there is hyperplasia of both glands and stroma. The glands are variable in size and commonly cystic. The lining epithelium is tall, columnar, often pseudostratified, and frequently ciliated. The stroma is abundant, tight, and cellular. Division figures are easily found in both glands and stroma. Foci of necrosis, hemorrhage and fibrin deposition may be present. This hyperplasia is reversible and cannot be classed as a definite premalignant condition.

Stromal Hyperplasia:

In some endometria subject to excessive estrogen stimulation the stromal reaction predominates and the glandular changes are less obvious.²⁵ There are broad areas of tightly packed, deep staining stromal cells, often somewhat spindle in shape and containing frequent division figures. Whether this hyperplasia precedes the development of stromal sarcoma is not known.

Adenomatous Hyperplasia:

This may occur in an endometrium that already shows cystic, glandular and stromal hyperplasia, or in a proliferative type or even an atrophic endometrium.^{26,27} The areas appear as somewhat nodular foci, usually multiple, in which the glands are irregular in contour and closely approximated with little stroma. They may appear to be forming outpockets or daughter glands. The epithelium is hyperplastic with division figures but lacks the atypicalities of carcinoma. The lesion is usually encountered around the menopause or thereafter and is considered by many to

possess a definite tendency to go on to carcinoma.

**Atypical Glandular Hyperplasia
(Glandular Dysplasia):**

The criteria for separating this lesion from adenomatous hyperplasia on the one hand and gland cell carcinoma in situ on the other are not well defined,^{27, 28, 29, 30, 31} and thus some consider it to be a debatable entity. We find the term useful for lesions that show considerable atypism but for which we are reluctant to assign a diagnosis of cancer. Some workers would probably call the lesions carcinoma in situ and others adenomatous hyperplasia.

The glands are increased in numbers, variable in size and shape, perhaps crowded together, and formed by columnar cells with some loss of polarity, and variation in size and staining. Division figures are easily found but are of normal form. This type of change usually occurs in cystic glandular and stromal hyperplasia or in adenomatous hyperplasia.

Focal Hyperplasia of Zona Basalis:

Areas of hyperplastic endometrial tissue similar to and continuous with that of the zona basalis may be found within the functional part of the endometrium, surrounded by somewhat compressed stroma. These areas have been termed basal adenomas, incipient polyps, and intraendometrial polyps.^{25, 28} They are not shed during menstruation. Not only have they been considered to be the forerunners of endometrial polyps but by some of endometrial carcinoma.

Squamous Cell Metaplasia (Squamous Prosoplasia):

Squamous cells form in the endometrium under several situations and assume several patterns of growth.^{32, 33, 34, 35} On the surface of the endometrium they arise as direct metaplasia in chronic endometritis, particularly if there is pyometria or the presence of foreign material. Occasionally the process may become very extensive and line the entire uterine cavity, a condition known as ichthyosis uteri.

Nests of squamous cells develop in relation to glands by indirect metaplasia or more properly prosoplasia from reserve cells. This reaction probably is related to abnormal hormonal stimulation. It is seen in endometrial polyps, hyperplasia, and well differentiated adenocarcinomas. This benign squamous change should not be confused with the truly malignant squamous alteration that develops in certain gland cell carcinomas, acantho-adenocarcinomas. The presence of nests of

squamous cells in biopsy specimens, however, requires a suspicion of carcinoma in the absence of endometritis even though they appear well differentiated.

Mucous Cell Metaplasia (Muciferous Prosoplasia):

In elderly women, patchy areas may be seen on rare occasions in the endometrium of the corpus uteri, where the cells of surface or glands have been replaced by mucus producing columnar cells, similar to those of the endocervix. If extensive, the process may cause a myxometria and rare examples of mucin-producing carcinomas of uterine body may arise from these cells.

Osseous Metaplasia:

In severe, long-standing cases of chronic endometritis, connective tissue metaplasia may occur with the formation of heterotopic bone.^{36, 37} The areas are intimately related to the severe inflammation and fibroblastic proliferation. They must be distinguished from areas of retained and implanted fetal tissue following instrumental abortions.

**IMPLANTED FETAL TISSUES
FOLLOWING ABORTIONS**

In connection with abortions, particularly those produced by instrumentation, fetal tissues may be implanted in the endometrium and proliferate. Nodular masses of neuroglia, cartilage and bone have been observed,^{38, 39, 40, 41} and have been termed endometrial gliomas, chondromas and osteomas. Most cases are discovered accidentally during investigations of dysfunctional uterine bleeding. The areas are sharply defined and often seem to compress the adjacent endometrium; inflammation is minimal or absent. It is interesting to speculate as to whether some of the rare and exotic neoplasms that have been observed within the endometrium might have arisen from these tissues.

IATROGENIC ENDOMETRIAL CHANGES

A number of alterations have been observed in endometria following the use of exogenous agents, particularly hormones. Estrogens inhibit ovulation during the reproductive period and may cause cystic glandular and stromal hyperplasia, adenomatous hyperplasia, and dysplasia. The same changes may be seen with estrogen therapy after the menopause.

The recent extensive use of progestins as contraceptive and therapeutic agents has focused attention on a variety of alterations due to them in the endometrium.^{42, 43, 44, 45} These vary with the po-

tency and chemical structure of the agent, the dosage and the status of the endometrium before treatment but they are basically similar. There is suppressed glandular proliferation and secretion, atrophy of epithelium, stromal edema, increased vascularity and often a prominent decidual change. These striking changes are not encountered now as frequently as when these agents were initially employed, mainly because of lower dosages.⁴⁶ Thus, the endometria may differ little from a resting phase with lack of epithelial and stromal proliferation, or perhaps show some atrophy of glands, and maybe a faint abortive attempt at decidual formation.

ENDOMETRITIS

Acute endometritis is not often encountered in biopsy specimens. In most instances it is due to infections that follow abortions or deliveries. The inflammatory component is mixed with neutrophils predominating and there may be areas of hyalinized necrotic decidua, viable or ghost chorionic villi, and scattered trophoblastic and/or decidual giant cells. In the absence of definite decidua or trophoblastic elements, the gestational hyperplasia of glands and prominent vascular sclerosis with fibrinoid change and hyalinization indicate that the inflammation is related to a pregnancy.

Chronic endometritis may be associated with old retained products of conception, foreign material, pelvic inflammation, or endocervical stenosis. Although there is a mixed inflammatory cell population, plasma cells usually predominate. If the process is very severe, with considerable destruction of tissue, there may be fibrosis, squamous metaplasia or osseous metaplasia.

Tuberculous Endometritis:

Tuberculosis is one of the more important and more specific chronic inflammations of endometrium.^{47, 48, 49} It is secondary in most instances to tubal involvement which in turn is secondary to disease in the lungs or intestinal tract. Many of the cases that are diagnosed are found during investigations on non-symptomatic infertile patients but some patients do have symptoms and signs of chronic pelvic disease.

The disease is characterized by scattered epithelioid tubercles throughout the endometrium with a few Langhan's giant cells and surrounding lymphocytes. Caseous necrosis is uncommon except in advanced disease in postmenopausal women. There may be some glandular hyperplasia but this is not sufficient to cause any confusion

with carcinoma. Material from the fundus, particularly from the region of the openings of the fallopian tubes is most likely to contain tubercles and they tend to be more prominent in material collected during the latter part of the menstrual cycle. If the disease is suspected but initial biopsy is negative, repeat biopsies should be done. Sequential biopsies may be of value in assessing the effect of therapy.

CANCER OF CORPUS UTERI

As previously pointed out, endometrial biopsy is a fairly reliable means of diagnosing carcinoma of the endometrium but it is not as accurate as formal curettage and a negative finding on biopsy cannot be relied upon to the same extent as a negative finding on formal curettage. In biopsy specimens not only is there a chance of missing some carcinomas but also a danger of over diagnosing specimens that have been badly traumatized. Certainly if there is any doubt as to the presence or absence of carcinoma in biopsy material, additional specimens taken by formal curettage must be examined. Sometimes the carcinoma may not be apparent in the obtained specimen but other changes that are often associated with carcinoma are found and these justify further investigation. Collections of lipid laden histiocytes and foci of squamous metaplasia in the absence of inflammation and necrotic tissue require the examination of additional tissue.

The diagnosis of infiltrative adenocarcinoma of the endometrium is based on the arrangement of glandular spaces and the cellular atypicalities. Both are important as some carcinomas are very well differentiated and show few cellular abnormalities. Adenocarcinoma in situ of the endometrium is a fairly well recognized lesion although some are reluctant to dignify it with the term carcinoma.^{27, 30} It is usually seen in a pre-existing hyperplasia such as a cystic glandular and stromal hyperplasia or an adenomatous hyperplasia but may be seen in a postmenopausal atrophic endometrium. The cells forming the glands are irregular in size and staining with loss of polarity and some stratification. Nuclei are larger than normal, hyperchromatic and there are frequent division figures. In some lesions the cells show a prominent eosinophilic staining of cytoplasm. There is good evidence that the probable sequence of events in some cases of carcinoma of the endometrium at least, is diffuse or adenomatous hyperplasia, dysplasia, carcinoma in situ and finally overt cancer.

Other types of cancer of corpus uteri such as squamous cell carcinoma, endometrial stromal sarcoma, carcinosarcoma and leiomyosarcoma can, on occasion, be diagnosed by biopsy but accurate classification of these less common neoplasms may require greater amounts of tissue. Usually, however, the findings in the biopsy specimen are sufficient, at least, to alert the attendants to the necessity of further investigation.

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Transient Ischemic Strokes: Study of Anticoagulant Therapy

R. N. Baker (Wadsworth VA Hosp, Los Angeles), W. S. Schwartz and A. S. Rose *Neurology* 16: 841-847 (Sept) 1966

An eight-year study of anticoagulant therapy in 60 patients, using randomized controls, showed that treated patients fared better than controls in that they had fewer new cerebral vascular events and less disability. There were no deaths attributable directly or indirectly to cerebral infarction. Overall mortality was similar in treated and control groups. Patients with transient ischemic attacks (TIA) showed a benign course; this more optimistic prognosis appears to characterize the natural history of the TIA syndrome, although factors of patient selection and good antihypertensive management contribute to it. Long-term anticoagulation is indicated in the treatment of selected patients with transient cerebral ischemic attacks, although further study is needed.

Determination of Estrogen and Progesterone Metabolites in Pregnancy Urine for Gas Chromatography

A. L. Larsen and A. W. Engstrom (University of Nebraska College of Medicine, Omaha) *Amer J Clin Path* 46:352-361 (Sept) 1966

A clinically useful method for the determination of estrone, estradiol, estriol, pregnanolone, pregnanediol in pregnancy urine is presented in detail. Fifty consecutive analyses from 41 patients are presented and correlated with the clinical status of the patient and infant. Values for estriol and pregnanolone in pregnancies in which there is fetal distress or placental dysfunction are fairly clearly delineated with the exception of hemolytic disease of the newborn in which the values are normal. Abnormally low values were present in two cases in which the infants had chromosomal abnormalities. Estriol values appear primarily to reflect fetal status, whereas pregnanolone values are more related to placental function.

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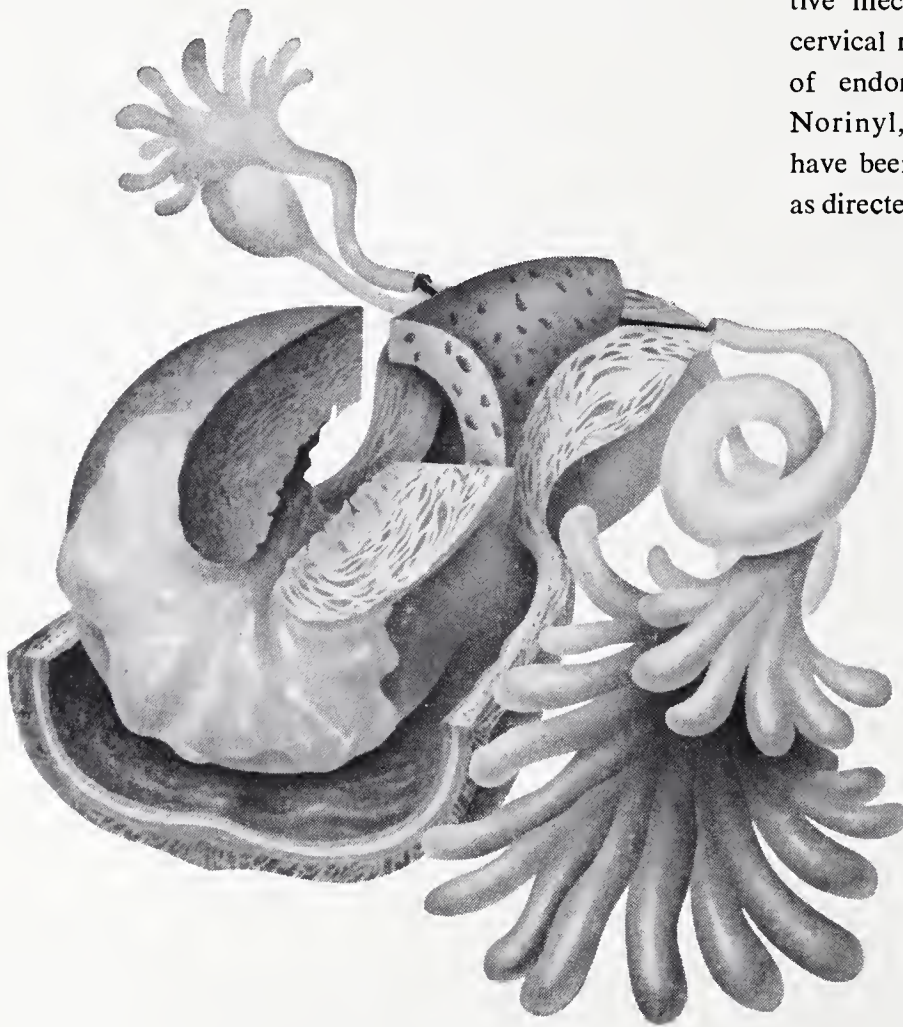
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C.P.C. #9, Clinical Discussion from the University of Arkansas School of Medicine

Benjamin Drompp, M.D.,* Orthopedist, Wilma Diner, M.D.,* Radiologist
and
Roy Hoke, M.D.,* Pathologist

History—

This 58 year old white male farmer was first seen in the Orthopedic Clinic 4-16-56 with the complaint of pain in his right hip and leg for the past 2 years. It began as mild right hip pain slowly progressive in intensity except for one week the previous Fall when it was much less severe. There were periods of more intense continuous pain up to 2 weeks duration with the last being in the 2 weeks prior to this admission. Over the past few months the pain had spread slowly to involve the entire right leg, had become worse and was characterized as throbbing and aching and radiated to the bottom of the foot. It was worse at night than daytime and was not relieved by aspirin, position or heat and was not made worse by walking. It was confined to the right hip and leg. There was a recent 8 lb. weight loss. The patient denied having received trauma to the right hip or leg.

*Past History—*The patient stated that he had smoked for 50 years, using 2 cans of tobacco per week.

He was hospitalized at this hospital five years previously on his first admission and had a laparotomy for gallbladder disease but a normal biliary system was found and liver biopsy was reported as hepatitis. No history of tuberculous contact was elicited.

*Physical Examination—*B.P. 120/70; P. 92; R. 16; T. 98°

*General—*He was a well developed white male, appearing chronically ill and appeared to have moderately severe constant pain, guarded his right leg when moving and frequently changed positions. He stood with his weight on his left leg and the right leg was slightly externally rotated.

*HEENT—*Thyroid not palpable; no lymphadenopathy was found. Neck was supple.

*Chest—*Clear to auscultation and percussion; good expansion bilaterally equal on inspiration.

*Heart—*Regular rhythm, not clinically enlarged and no murmurs heard.

*Abdomen—*There was a healed midline surgical

scar in epigastrium from surgery of first admission. Bowel sounds normal; no abdominal tenderness elicited and liver and spleen were non-palpable.

*G-U—*Uncircumcised; no scrotal masses other than normal testis and no enlarged inguinal rings found.

*Rectal—*Revealed small, firm prostate. No masses either bony or soft tissue were palpable per rectum.

*Back—*No pain or limitation of back movements.

*Skeletal—*There was a localized area of exquisite tenderness to palpation approximately 1-1½ inches superior to the right acetabulum. Patrick test was negative. There was pain on flexion, abduction and external rotation of right hip. Some muscle fibrillation was noted in right hip and thigh when hip was abducted.

*Neurological—*No sensory changes noted. Deep tendon reflexes were unequal but not further described.

*X-rays of Pelvis—*Showed osteolytic lesion in the right innominate bone immediately above the acetabulum with surrounding sclerosis. In comparison of films of abdomen taken during his first admission in 1951 in retrospect show no definite lesion but there was a vague suggestion of some type of change at that time. Bone survey and chest film failed to reveal further lesions.

*Laboratory Data—*Urine—normal—no Bence-Jones Protein

Blood—Hgb. 12.3; WBC 10,200 with 69% polys, 29 lymphs, 1 mono and 1 eosinophil

ESR—19 mm/hr; Total protein 7.0 gm% with 5 g. alb. & 2 g. glob.

Acid Phosphatase 0.0 K.A.U.

Alk. Phosphatase 8.4 K.A.U.

Skin tests for TBc and Fungi are not recorded

*4301 West Markham, Little Rock, Arkansas.

Serum Calcium and Phosphorus were not recorded.

Hospital Course—The patient was admitted to the hospital and the above data obtained. He continued to have pain despite codeine administration. On 4/26/56 he was taken to the OR and under general anesthesia a biopsy was performed.

Dr. Drompp

I would like to start by saying that much of the consideration of this type of problem in the C.P. is being done as it should be done in actual management of the patient's problem. Consultation and cooperation with the orthopedist is certainly essential to the radiologist and pathologist in order to come to a satisfactory conclusion about such a problem as this one. This patient's complaint of pain of two years duration would indicate that a chronic lesion is present. It has been indicated in the protocol that films of 1956 were compared with those of the pelvis taken in 1951 seeking for pre-existence of this disease as far back as five years. I doubt if there was a lesion in 1951 and suspect that these films were taken for evaluation of some other problem. I am sure that Doctor Diner will show you all of these films.

We must consider here a patient with pain of the hip for over two years that has gotten progressively worse. We note that it is only recently that he has been unable to work because of this pain. We must assume that it was because of this inability to work that he decided to seek medical advice. This is usually the case in many medical problems that the patient will often wait until his symptoms become quite severe before they seek medical advice and the final reason for such a decision usually is because they are incapacitated and unable to work and continue their day to day activities. According to the protocol in the few months prior to admission his symptoms had gotten much worse and furthermore, according to the protocol there was involvement of the entire leg rather than the hip only. I interpret this to mean that there was radiation of pain down the posterior aspect of the thigh and leg as we will see from review of the films.

This lesion does involve the area of the hip and we need to recall that the sciatic nerve is that structure immediately posterior to the acetabulum and the pain felt in this patient's leg and thigh is not on a referred basis but because of pressure of

the lesion upon the sciatic nerve itself. It is significant that the pain radiated to the bottom of the patient's foot for referred pain in the distribution of sciatic nerve from the lesion elsewhere such as in the low back would not go to the bottom of the foot on this basis alone and the fact that this pain does go into the foot suggests that the lesion is causing direct impingement of the sciatic nerve. We note that the pain was worse at night than in the day and this is very characteristic of bone tumors. We believe that this characteristic worsening of pain at night in patients with a bone tumor occurs because during the day the patient is able to mentally ignore his symptoms and proceed pretty much as usual but, when lying in bed at night and attempting to get to sleep, he becomes much more acutely aware of the pain. The indication that aspirin did not relieve the pain is significant in evaluation of bone tumors. There is one specific bone tumor (the osteoid osteoma) which characteristically has pain relief by the taking of aspirin.

A weight loss of eight pounds is insignificant in this particular incident for a period of time in which the weight loss occurred is not given and in general people who are uncomfortable and under the constant stimulus of pain do eat as well as they would ordinarily. Trauma has been denied in this case but we need to remember that it is often difficult to get a history from a patient that has had symptoms over a two year period. In reviewing the past history the most significant revelation is that the patient denies contact with tuberculosis.

In the physical examination section it is reported that the patient appears chronically ill but this does not necessarily mean that he is systematically ill but simply that the patient is reflecting the presence of constant pain. The protocol indicates that he was observed to be in constant pain and he seemed to be unable to bear weight on the affected right leg because of pain and kept shifting positions in order to avoid weight bearing on the right side. On examination of the back and the buttocks it is noted that the patient had a localized area of exquisite tenderness to palpation posterior to the right acetabulum and this, of course, would correspond to the lesion reported in the x-ray evaluation. We can assume from history and x-ray that the lesion is posterior for there is clinical information that suggests that it is the sciatic nerve that is being

irritated. I do not believe that the Patrick's test was really negative for the next sentence indicates that any motion of the hip joint caused the patient pain, and since Patrick's test is a test involving hip motion I would not believe that this would be a correct physical finding here. The fact that there is pain in the region of the hip on any motion of the hip is *prima facie* evidence of intra-articular involvement of the hip itself. Patients with hip pathology characteristically have pain upon any motion of the hip and only in those hip joints with limitation and pain at the extremes of motion in any direction would we have a suggestion of something other than primary hip pathology. The protocol reports muscle fibrillation on the right hip and thigh. If this is true muscle fibrillation, I believe that this suggests a neurological disease and the pathology would be located in the spinal cord at a much higher level than his hip and I rather suspect that this reported fibrillation is really associated with the disuse atrophy that has accompanied this patient's hip lesion. Significantly, in the protocol, neurological changes were not noted with the exception of muscle fibrillation. We will skip the x-ray examination in order to allow Doctor Diner to discuss x-rays. In reviewing the laboratory data, we noted that the Bence-Jones protein determination of the urine was negative but this does suggest that myeloma had been considered in this case. I think that we need to point out at this point that the best single positive diagnostic test of multiple myeloma is bone marrow aspiration and that had multiple myeloma been a serious consideration in this patient's problem, a bone marrow sternal aspiration would have been carried out. In general, the laboratory work contributes no information with the exception of the alkaline phosphatase reading of 8.4 King Armstrong units. This finding simply indicates that there is a destructive lesion involving bone. Alkaline phosphatase elevation is seen in osteolytic lesions of metastatic prostatic carcinoma and this diagnosis needs to be considered because of a lytic lesion within the pelvis itself.

In summarizing, we have a patient with exquisite tenderness to movement of his hip, evidence of sciatic nerve pressure and x-ray report suggesting lytic lesion of the region of the right hip. An initial temptation here is to ascribe this lesion to some inflammatory process such as tuberculosis but it would appear that all the information

presented in the protocol that this is a primary bone tumor and it must be remembered that primary bone tumors are certainly less common than metastatic lesions within bone. Is it possible that this patient could have a degenerative process involving the hip and causing his symptoms and laboratory evidence that are exhibited by this patient? It is true that cystic lesions develop in the pelvis adjacent to the acetabulum in degenerative disease of the hip but degenerative disease of the hip usually also has specific changes of the hip itself and this has not yet been reported in these x-rays. It is possible that this patient may have post-traumatic arthritis resulting from a traumatic incident in his youth that has not been reported in the protocol but this seems to be an unlikely possibility here. Finally, a congenital or developmental etiology must be considered but it would seem likely that if his symptoms were due to a congenital abnormality that he would have presented himself for care and treatment long before this time. I believe I would now like to look at the x-rays and will ask Doctor Diner to exhibit and discuss the x-rays that have been taken of this patient.

Dr. Diner

This chest film was actually taken a little later than the initial 1951 films. The lungs are clear. There are no visible bony lesions in the thorax. The films of the pelvis were also considered normal. He had a G.I. series at the time of his initial admission which shows a chronically deformed duodenal bulb and what, I believe, represents an active ulcer crater. On the later films we see the sutures resulting from his previous surgery and we see the lesion in the acetabulum which Dr. Drompp has already mentioned. I believe this abdominal film shows this best. A radiolucent area is present in the iliac portion of the acetabulum. It has a rather lobulated margin and in the center of it are some speckled flecks of calcific density. It is surrounded on both sides and above by an extensive amorphous infiltrating sclerotic density which extends about half-way up the ilium. The bone is not expanded. The cortex seems to be intact as far as I can see it; the process doesn't seem to be breaking out into soft tissues either medially into the pelvis or laterally. I do not have a satisfactory view which would show what is happening anteriorly or posteriorly. Of course, the question of posterior extension has come up in the discussion. Here is another view. Next is the

film taken five years earlier and I suppose that what was considered as possible early involvement in this area looks a little less dense but the sclerotic changes are not seen. Actually, this is not very different from the other side. I'm suspicious that maybe a lesion is beginning but I can't establish this with certainty. Now let me project this film. Here is the sclerotic area in the right ileum, the radiolucent area, the flecks of calcification in the center, no soft tissue mass here, none that I can see over here. I do not recognize any involvement of the joint for the space seems to be well preserved and smooth. I would like to ask Dr. Drompp if this clinical sign might indicate muscle involvement rather than actual joint involvement.

Dr. Drompp

It may but I suspect that the lesion is so close to the side of the subcondylar bone area that even though we can't see it, clinically there is an existing indication.

Dr. Diner

I think in a man of this age with a lesion that is apparently long-standing, which is destroying bone and showing reaction, that one of the things highest on the list would have to be a chondrosarcoma. There are several things against it radiographically and that is the absence of a large soft tissue mass. This is a reasonably common location for this type lesion, his age and sex would be very appropriate and these little calcifications are characteristic. In the absence of a soft tissue mass, with this amount of sclerosis and the fact that the lucency would have to be considered, I thought of the possibility of an osteoblastoma or giant osteoid osteoma. The calcification could occur the lucency would be all right, and the bone production around it would fit. He is somewhat older than the usual age. This particular type of osteoid osteoma, if that is what it is, doesn't respond to salicylates. There are three other things that I would like to mention. One is myeloma which can occasionally produce mixed sclerotic and osteolytic lesions but not very often. It would have to be a solitary lesion. A primary reticulum cell sarcoma would have to be rather high on the list also. His age would be all right for it. It could produce a sclerotic reaction. The location would be all right. It could conceivably be a gunma.

Dr. Hoke

This patient was first admitted to the hospital about five years prior to the illness under discus-

sion. At that time he had signs and symptoms of gall bladder obstruction. A cholecystectomy and liver biopsy were performed and he was subsequently discharged. During this admission no symptoms referable to the leg or hip area are recorded.

On the first admission for the present illness the patient was referred to the Orthopedic Clinic for evaluation of leg and hip pain. X-ray and laboratory studies were made. The Orthopedic staff felt the lesion was a chondromyxiosarcoma or some similar malignant slow-growing primary bone tumor. An open biopsy was made of the lesion and a diagnosis of chondrosarcoma established on permanent section examination. Subsequent wound infections prevented definitive surgical therapy until four months later. A partial hemipelvectomy was done. The post-operative course was relatively uneventful. He was followed at regular intervals in the clinic and did very well for about six months. X-ray examination of the chest at the six month post-operative interval disclosed a one centimeter lesion in the right lung. This lesion enlarged and other lesions appeared in the lungs as demonstrated by subsequent chest x-rays. He died at home about one year after the original diagnosis of his illness. There was no autopsy.

I would now like to show you some photomicrographs of the histological slides prepared from the biopsy and surgical material. The fields which I am about to show you mean very little by themselves. You would not wish to make a diagnosis of any bone tumor on the basis of a few isolated microscopic fields. These photomicrographs have been selected to demonstrate the manner in which this tumor grows and illustrate some of the criteria which are helpful to the pathologist in making a diagnosis of malignant chondrosarcoma. I feel that close cooperation between orthopedist, radiologist and pathologist is very essential in the diagnosis of all bone neoplasms. The clinical, radiologic and cellular manifestations of bone neoplasms must all be considered in diagnosis.

The first slide is a low magnification of the peripheral margin of the lesion. Here, we can see the lysis of normal bone by the encroaching malignant cells. Notice that the tumor is not particularly cellular as compared with many other types of sarcoma. This area is not nearly as cellular as the usual benign chondromas affecting the fingers. In this next slide, the higher magnification dem-

onstrates some of the individual cellular details which are helpful in determining the nature of the tumor. There are small aggregates of cells which are not seen in normal chondroid tissue. In this area we see cells which are rounded or plump with occasionally multiplicity of nuclei. There is one giant cell. These are all criteria which point toward malignancy. Often in these tumors, we can see areas of myxoid degeneration. This is not well illustrated in this tumor. The area here, having somewhat the appearance of myxoid, is actually an area of necrosis. As Dr. Drompp suggested, we often wonder if we are dealing with an osteogenic sarcoma or a chondrosarcoma. The point of differential here is the presence or absence of osteoid. Osteogenic tumors can, and often do, produce cartilage. Cartilagenous tumors, on the other hand, do not produce osteoid. In this slide we are able to see a fairly good number of cartilagenous cells which have double nuclei. In this area, there is a pale, fibrillar appearance often associated with degenerating cartilage.

The next slide was prepared from material removed after the initial biopsy and following the inflammation in the area. This has a much more fibrinous appearance and in many areas suggests a fibrosarcoma. Chondrosarcomas often become much more fibrous in sites of metastasis and are very similar to fibrosarcomas histologically. We must also keep in mind the possibility of an intense reaction to inflammation and this area may represent only reaction to injury. We often classify chondrosarcomas as being primary or secondary, the secondary series arising in pre-existing benign osteochondromas. Most bone pathologists feel the origin of chondrosarcomas in pre-existing osteochondromas is quite rare except in the case of multiple, familial type. By the time the patient presents himself to the orthopedists, the lesion has usually developed to a point where the point of origin cannot be determined accurately. About 50 per cent of all chondrosarcomas involve the pelvis or ribs. They are extremely rare distal to the wrist or ankle. The average age of occurrence is forty years and older. The younger age groups seem to have a somewhat less malignant form than the older age groups. Chondrosarcomas are approximately twice as common in males as in females. Dr. Drompp, do you have any further comments?

Dr. Drompp

We have not as yet discussed the obtaining of adequate biopsy material for review of the pathologist. Currently, we are under great pressure to perform needle biopsies in evaluating various pathological processes. I, myself, believe that needle biopsies are inadequate for the diagnosis of most primary bone tumors and would like to recommend that needle biopsies not be considered in evaluation of primary bone tumors. I believe that the pathologist needs as much of the tumor as possible for his evaluation. Certainly he needs the bone that has produced the reaction to the tumor or that has been eroded away by the tumor and then in addition, he needs a portion of the tumor adjacent to this bony area that would include all of the tumor down to the actual center of the tumor. I believe that the pathologist requires this much material to work with in the area of primary bone tumors. The reason for this recommendation is that in many bone tumors when the tumor outgrows its blood supply there is central necrosis and this central material is not really of value to the pathologist. On the other hand, the most active part of the tumor is peripherally and this material must be included and such specimen submitted to the pathologist for his opinion.

Since the x-rays of this patient have not been completely exhibited, I will tell you about hemipelvectomy. Hemipelvectomy is a very mutilating operation to say the least. I am not so sure whether it was a wise thing to do in this particular case but would admit that this tumor appeared to be of low grade malignancy that would be compatible with a two year history of development. I do not know what the histological characteristics of this tumor are but biologically it appeared to be a low grade sarcoma in spite of the fact that the man died of his disease after more than a two year history. Hemipelvectomy is recommended because it may be life-saving even though mutilating. Hemipelvectomy is then a satisfactory recommendation provided the lesion is surgically accessible and amenable to complete eradication by hemipelvectomy. There is very little we have to offer relating to tumors of the pelvis and proximal femur other than hemipelvectomy.

The technique of hemipelvectomy means that half of the pelvis and the entire extremity is removed and the level of transection of the pelvis is carried out at the sacroiliac joint on the in-

volved side and at the symphysis pubis of the midline anteriorly.

Finally, since cartilagenous tumors contain sulphated mucopolysaccharides it is reasonable to expect that such neoplasms will preferentially incorporate radioactive sulphur that can be given to the patient intravenously. It is assumed that the radioactivity of the incorporated sulphur will either modify or inactivate the tumor. Experience to date with this sort of experimental approach

has been poor because the same radioactive material will cause the patient a rather severe systemic bone marrow depression throughout the body. When intravenous use of radioactive sulphur has been carried out in patients with chondrosarcomas, it has been found that only the periphery of the tumor has been affected or inhibited by the radioactivity but nothing else within the tumor has been affected.



Trauma-Induced Intention Tremor Relieved by Stereotaxic Thalamotomy

J. L. Fox and J. F. Kurtzke (Georgetown University School of Medicine, Washington, DC) *Arch Neurol* 15:247-251 (Sept) 1966

Two cases of trauma-induced, unilateral, severe intention tremor relieved by stereotaxic ventrolateral thalamotomy are of particular interest since the lesion was further localized clinically. In the first case, the left-sided intention tremor was associated with a right superior oblique ocular palsy, indicating a lesion in the brachium conjunctivum on the left before its decussation and including the medially adjacent fourth nerve before its dorsal crossing. The second case had right-sided intention tremor and hypotonia and a wide-based, ataxic gait. The lesion was placed more caudal in order to involve the ipsilateral dentate and midline cerebellar nuclei. Contralateral ventrolateral thalamotomy by radioactive frequency current in the first case attenuated and in the second case relieved the intention tremor but had no significant effect on the dysidiadokokinesis, hypotonia, or ataxic gait.

Absence of Prophylactic Effect of Linolenic Acid in Patients With Coronary Heart Disease

C. F. Borchgrevink et al (Ullevål Hosp, Oslo) *Lancet* 2:187-189 (July 23) 1966

In two groups of 100 male patients with coronary heart disease the effects of 10 ml linseed oil (50% linolenic acid) daily and of 10 ml corn oil (1% linolenic acid) daily, respectively, were com-

pared in a double blind study; the observation period varied between 3 and 16 months, the average being 10 months. Serum cholesterol was reduced in both groups: 12 mg/100 ml in the linseed oil group and 25 mg/100 ml in the corn-oil group. About 30% of the patients had congestive heart failure, but there was no difference in the two groups. Cardiac deaths per year were 12.0% in the linseed-oil group and 15.4% in the corn-oil group; the reinfarction rate was 19.4% and 15.4%, respectively. There were 21 cardiovascular episodes in the linseed-oil group (25.4%) against 18 in the corn-oil group (23.1%). Daily intake of 10 gm linseed oil reduced neither the platelet adhesiveness, nor the mortality, nor the reinfarction rate.

Slowing of Cerebral Circulation After Concussional Head Injury: Controlled Trial

A. R. Taylor and T. K. Bell (Royal Victoria Hosp, Belfast, Ireland) *Lancet* 2:178-180 (July 23) 1966

Radioactive isotope investigation, using external scanning, indicated that the mean cerebral circulation time in 70 patients with postconcussional symptoms was 15% greater than the mean cerebral circulation time of 70 controls. There was a correlation between improvement of symptoms and the return of circulation time to normal. Cerebral blood volume probably is reduced after concussional head injury. Increased cerebral vasomotor resistance at the arteriolar level is the probable cause of increased cerebral circulation time.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., Professor, and Chairman
STACY R. STEPHENS, M.D., EDITOR

Adenocarcinoma of the Endometrium

Clio Armitage Harper, Jr., M.D.*

INTRODUCTION

With the ever-increasing life expectancy in this country, and the increasing percentage of our population in the older age groups, interest in the diagnosis and therapy of the diseases of these older individuals continues to expand. Although certainly encountered in younger individuals, adenocarcinoma of the endometrium is primarily a disease of the geriatric patient. Numerous reports have appeared in the medical literature concerning various areas of controversy with respect to etiology, epidemiology, frequency, and methods of treatment of this disease; but many areas of controversy still exist. These areas of controversy will ultimately be resolved only by the continued compilation of experience with this disease. The purpose of this report is to present the experience at the University of Arkansas Medical Center with adenocarcinoma of the endometrium during the years 1948 through 1960.

HISTORICAL BACKGROUND

Frequency: Prior to the beginning of the 20th century, adenocarcinoma of the endometrium was a rare entity. In 1887 Gusserow was only able to collect a total of 122 cases from his personal experience and the world literature.¹ He calculated that carcinoma of the uterine fundus comprised three to six percent of carcinomas of the uterus. Approximately ten percent of these fundal carcinomas occurred prior to the age of thirty. Several of these were associated with pregnancy and were probably choriocarcinoma instead of endometrial carcinoma. In contrast to the rarity of this disease prior to 1900, it is now one of the major car-

cinomas of women. It is estimated that carcinoma of the uterine fundus comprises approximately 6 percent of all cancers of women. In 1962 the American Cancer Society² estimated that 9,000 new cases of the disease would occur that year, and 4,000 women would die of this malignancy. The present calculated ratio of endometrial carcinoma to cervical carcinoma is estimated to be between 1:3 and 2:3. There are several possible explanations for the apparent or real increase in the frequency of this disease. Diagnostic methods and patient awareness of early warning signs have improved greatly over the past seventy-five years. This is a disease of older women, and the geriatric population of this country has more than quadrupled during this century. The increase in longevity through better medical care would even more selectively preserve individuals prone to develop this malignancy. Fundal carcinoma has been shown to be more common in economically prosperous patients; and prosperity has been continually increasing in this country since the turn of the century. These factors, and probably many others combine to explain the increase of this disease since 1900.

Over the years certain clinical features of women who will develop carcinoma of the endometrium have become apparent.

Age: The average age at diagnosis of this disease is between 55 and 58 years.³ However, between 2.1⁴ and 4.8⁵ percent of the reported cases occur in women under the age of forty. The youngest individual to have had this disease was a girl ten years of age.⁶ Corscaden⁷ states that seventy-five percent of the patients developing this type of cancer are over the age of fifty, with

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a declining incidence past the age of sixty-five.

Heredity and Previous Malignancy: A family history of cancer has been found to be more prevalent in women developing carcinoma of the fundus than would be expected. Hertig⁸ reports an incident of 12 percent. Also those authors who have considered this factor have found an increased incidence of other neoplasms in the women developing this disease.

Economic Status, Race, Obesity, Hypertension and Diabetes: Endometrial carcinoma has been found to be more common in women in the private patient class than in indigent patients. Corscaden⁷ reported 47 percent private patients and Boutselis⁵ 58 percent. It has been postulated that economic security has led to decreased physical activity and overindulgence in food with resultant obesity. The obesity in turn leads to increased hypertension and diabetes. In this country members of the Caucasian race have had greater economic security than other races. Therefore, the disease is found more commonly in members of this race.

Endocrine Dysfunction: Evidence of disturbed ovarian function is found in a large percentage of patients who have developed endometrial carcinoma. Many of these women have been unable to conceive successfully. Corscaden⁷ reported that 38.6 percent were without children, and Boutselis observed that 30 percent of the patients in his group were nulliparous. Hertig⁸ noted a high percentage of menstrual irregularities in these women with the frequent occurrence of menorrhagia at the menopause. Corscaden⁷ noted the average age of menopause to be 53, or five years later than in women without the disease. Wax¹⁰ reported the average age of menopause in his group to be 52 years. Andersen and Stephens³ found that 34 percent of their patients continued to menstruate past the age of fifty-two. Other authors have not noted such a significant difference, but most all agree that a higher percentage will continue to menstruate past the age of fifty. It has also been noted that patients who have received previous pelvic irradiation are more likely to develop endometrial carcinoma. However, in most instances this irradiation has been given for the purpose of ablation of ovarian function because of excessive or abnormal menstruation.

One theory of the genesis of adenocarcinoma of the endometrium is that the disease is an end result of continuous long-term estrogen stimula-

tion, either endogenous or exogenous. This theory is still quite controversial, but its proponents point out that endometrial carcinomas have been associated with estrogen producing ovarian tumors. They claim that adenocarcinoma of the endometrium is the end phase of a progressive process which has passed through various grades of hyperplasia. This argument cannot easily be resolved. Is it interesting to note that infertility, menorrhagia, and periods of amenorrhea often are reported by patients developing this disease. This is certainly compatible with anovulatory cycles associated with continuous estrogen stimulation.

Uterine Fibroids: Myomata uteri have been found in association with endometrial carcinoma by many authors. The incidence of association, however, does not appear to differ significantly from the incidence in women of similar age without carcinoma of the fundus. Larson¹¹ in a review of the literature in 1954 was unable to demonstrate any correlation.

Symptomatology: The presenting symptom found in almost every patient with adenocarcinoma of the endometrium is abnormal uterine bleeding. Most authors report this to be the presenting symptom in 90 percent or more of their patients. Corscaden⁷ considers pain as a presenting symptom to be indicative of nerve root involvement, and therefore a poor prognostic sign.

Classification: Numerous clinical classifications have been devised over the years in an effort to determine prognosis. These have been based upon the histologic appearance of the tumor, the size of the uterus, the extent of myometrial invasion, etc. Only two classifications will be considered here. The classification of patients in this study has been made only from information available prior to the institution of any type of therapy. This practice is felt to be advisable in order to give equal validity to the classification of patients treated non-surgically as well as those treated surgically.

First, the classification used at the Radiumhemmet:¹² operable, technically operable, inoperable. Operable patients are those with disease limited to the uterus who are felt to be good operative risks. Technically operable patients are those in whom the extent of the disease is such that it should be amenable to complete surgical extirpation but the physical condition of the patient is such as to make definitive surgery impossi-

ble or quite hazardous. Inoperable patients are those considered to have tumors which cannot be completely surgically excised.

Second, clinical staging of the extent of the disease according to the classification recommended by the cancer committee of the International Federation of Gynecology and Obstetrics in 1961 will be attempted. The classification is outlined in Table I. This classification is relatively

TABLE I

Stage I: The carcinoma is confined to the corpus.
Stage II: The carcinoma has involved the corpus and cervix.
Stage III: The carcinoma has extended outside the uterus but not outside the true pelvis.
Stage IV: The carcinoma has extended outside the true pelvis or has obviously involved the mucosa of the rectum or bladder.

INTERNATIONAL CLASSIFICATION

new and has not yet been used extensively in reporting cases in the literature. Both of these classifications are preoperative clinical classifications and are somewhat difficult to apply in a retrospective study such as this. Cognizance of this fact has been taken in this evaluation and no information obtained subsequent to the onset of therapy has been used to alter the classification.

Treatment and Prognosis: Endometrial carcinoma has been successfully treated in the past by all of the various forms of hysterectomy, intracavitary radium, external irradiation, and various combinations of these. Cure rates approaching 50 percent have been achieved in even the poorest series. Analysis of the efficacy of these procedures is quite difficult because of selectivity of patients and the unwillingness of most physicians to alternate modes of therapy. In the United States in recent years the treatment of choice has been a combination of radiation and total abdominal hysterectomy. Five year cure rates with this form of therapy have varied from approximately 65 percent to 90 percent. With hysterectomy alone the results are almost as variable, although slightly lower, than irradiation combined with surgery. Even more recently, radical hysterectomy has been used in treatment of this disease.

Andersen and Stephens³ reported an absolute five year cure rate of 84 percent in 52 patients in whom the primary mode of therapy was a modified radical hysterectomy in which the ureters were not removed from the tunnels but a pelvic lymphadenectomy was performed. These operable patients represented 80 percent of total patients seen. The only extensive series reported

using irradiation alone as the primary mode of therapy is from the Radiumhemmet.¹² In a series of 695 patients treated by this method an absolute five year survival rate of 61.6 percent was achieved. In this series, 53 percent of the patients were considered operable. It can be implied even from these limited statistics that the cure rate achieved is influenced not only by the mode of therapy used, but also by the extent of the disease and the general physical condition of the patient. Unfortunately, many authors fail to report the data necessary to calculate these other factors.

MATERIAL AND METHODS

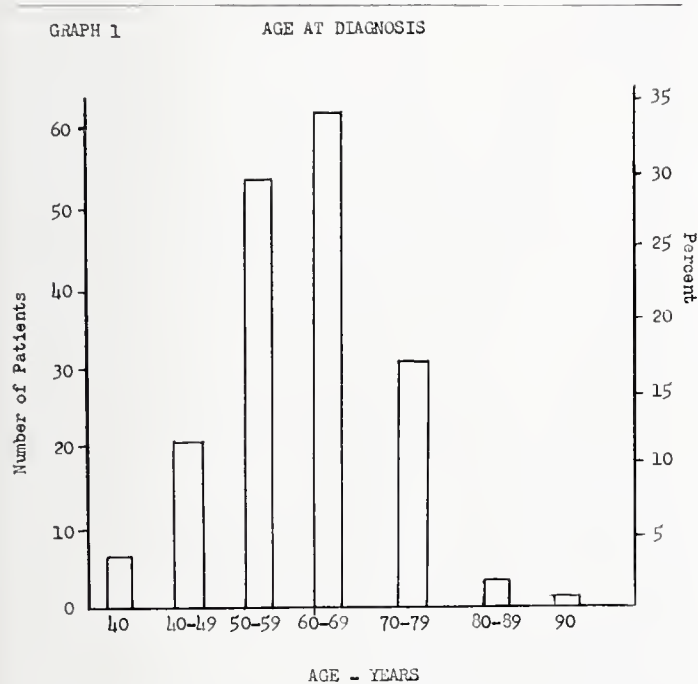
The study group consists of 180 consecutive patients with the diagnosis of adenocarcinoma of the endometrium seen at the University of Arkansas Medical Center. The period of study was 1948 through 1960 inclusive. No patients included in the study had received prior definitive therapy. 1960 was selected as the termination date of the study in order that five year survival rates could be calculated on all patients.

Throughout the entire period, the primary mode of therapy in this hospital has been a combination of intracavitary irradiation followed in six weeks by total abdominal hysterectomy. During the last three and one-half years of the study, the standard procedure has been intrauterine cobalt-60 combined with a modified radical hysterectomy. The intrauterine cobalt-60 capsules are left in place until a calculated dosage of 5000 R has been delivered to the serosal surface of the uterus. In the modified radical hysterectomy, the ureters are removed from the tunnels, but no node dissection is performed. Occasionally pelvic lymphadenectomy has been performed, in conjunction with radical hysterectomy, but because of the small size of this group, it will be considered with the aforementioned group. Prior to the last three and one-half years of the study, the standard procedure was intrauterine cobalt-60 capsules combined with total abdominal hysterectomy and bilateral salpingo-oophorectomy. In instances where implant was technically impossible because of the excessive size of the uterine cavity or because the cervix could not be visualized, the patient was treated with surgery alone. Patients considered to be absolutely inoperable were treated with intracavitary cobalt-60 and/or external irradiation for palliation. Some terminal patients received only supportive care.

RESULTS

Frequency: During the study period 180 patients were seen with endometrial carcinoma. During the same period of time, 1,514 patients with carcinoma of the uterine cervix were encountered—a ratio of 1:8.4.

Age: The average age at the time of diagnosis was 61 years with a range from age 30 to 91. Graph I shows age at diagnosis.



Associated tumors: Seventeen patients or 9.5 percent had other malignancies. These are shown in Table II. The most common malignancy, as

TABLE II

	No. Patients
1. Carcinoma of the Breast	6
2. Carcinoma of the Colon	3
3. Carcinoma of the Pancreas	2
4. Carcinoma of the Cervix (squamous)	2
5. Carcinoma of the Lung	1
6. Sarcoma of the Stomach	1
7. Cystadenocarcinoma of the Ovary	1
8. Malignant Teratoma of the Ovary	1
Total	17

OTHER MALIGNANCIES

would be expected, was carcinoma of the breast. One patient included in the study underwent an exploratory laparotomy for sarcoma of the stomach and died postoperatively. At autopsy she was found to have a Stage I adenocarcinoma of the endometrium.

Seven patients were found to have ovarian tumors. These included two thecomas; one Brenner tumor; one struma ovarii; one pseudomucinous cystadenoma; one cystadenocarcinoma; and one malignant teratoma.

Other: The University Hospital serves as a referral hospital for the entire state and most of the patients are from the lower economic strata. One hundred and one patients (56 percent) were Negro and 79 patients (44 percent) were Caucasian. This is a slightly higher percentage of Caucasian patients than was admitted to the gynecologic service during the same period, i.e. 39 percent.

All patients weighing greater than twenty pounds over the average weight for their height and age were considered obese. Tables for average weights were obtained from the World Almanac.¹³ Using this criterion, 90 patients or 50 percent were obese. Thirty-four patients (19 percent) were found to weigh two hundred pounds or more and two patients' weights exceeded 300 pounds.

Clinical diabetes mellitus was found in 15 patients (8 percent). Routine fasting blood sugars and glucose tolerance tests were not obtained on all patients. However, the patients in whom the diagnosis was made had diabetes mellitus severe enough to require administration of insulin or oral hypoglycemic agents.

Individuals with a systolic blood pressure of 150 or greater and/or diastolic blood pressure of 110 or greater on three different occasions were considered to be hypertensive. Of the 180 patients in the study group, 71 percent fell into this category.

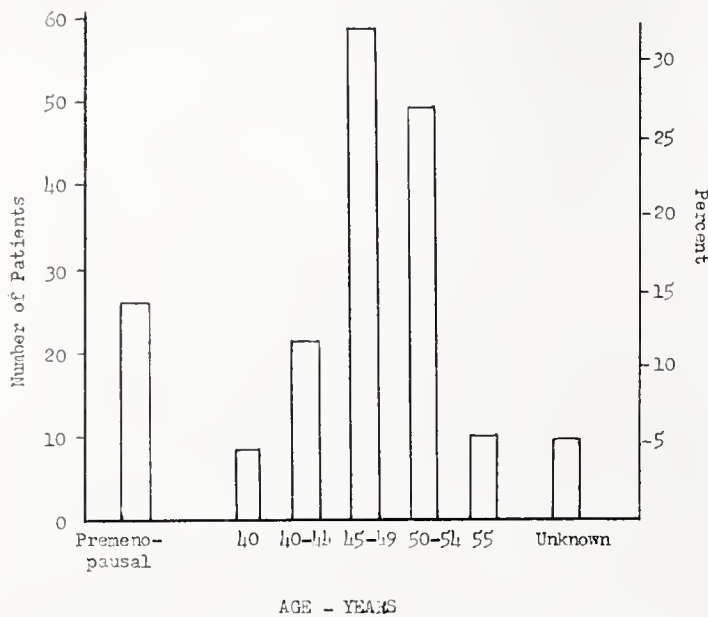
Uterine enlargement alone was not considered to be sufficient criteria for the diagnosis of uterine myomata, therefore only patients who underwent laparotomies were included in this group. Of 119 patients explored 62 percent were found to have uterine myomata.

Endocrine Dysfunction

Menarche and regularity of menses were not remembered well enough by the patients and not recorded frequently enough by the physician to be of significant statistical value. The age of menopause, however, was more accurately recorded, and the results of this evaluation are presented in Graph 2. The average age of menopause was 47.5 years. Twenty-six patients were premenopausal. Fifty-eight patients (32 percent) had continued to menstruate past the age of fifty. Thirty-one patients reported excessive bleeding with menopause. Five patients had undergone radiation castration for this problem.

Graph 2

AGE AT MENOPAUSE



AGE - YEARS

TABLE III

Parity	No. of Patients	Percent
0	45	25
1	32	18
2	36	20
>2	64	35
Unknown	3	2

PARITY

Fertility in this group appeared to be somewhat lower than in the average gynecologic patient of the same age seen in this hospital (Table III). Forty-three percent of the patients had one or no children. The abortion rate of this group was of equal significance. 147 abortions were reported in a total of 644 pregnancies, a rate of 23 percent. It is impossible to determine whether these were in fact abortions or simply menstrual irregularities, however either seems indicative of a significant endocrine dysfunction.

Symptomatology and Diagnosis

The presenting symptom in 167 patients was abnormal uterine bleeding. Five patients presented with vaginal discharge as their only complaint, one patient complained only of a pelvic mass and the chief complaint in four patients was pelvic pain. The remaining three patients had no gynecologic symptoms.

In a previously unpublished study of 88 patients, diagnosis was made in 50 patients by endometrial biopsy in 57 percent and by dilatation and curettage in 38.5 percent. One diagnosis was made on the basis of a cervical biopsy and three diagnoses were unsuspected prior to other procedures.

RESULTS

According to the Radiumhemmet classification 39 percent of the patients were operable; 31 percent were technically operable; and 30 percent were inoperable. Sixty-five of the 70 operable patients and 38 of the 56 technically operable patients received some form of surgical treatment.

Using the staging classification recommended by the International Federation of Obstetrics and Gynecology, 106 patients (59 percent) were found to have Stage I lesions. Twenty-one patients (12 percent) had Stage II lesions, 24 patients (13 percent) had Stage III lesions, and 29 patients (16 percent) had Stage IV lesions.

Fourteen patients were lost prior to five year followup. Eight were lost during the first year and all had residual disease at their last visit. One patient was lost after two years and was free of disease at that time. Another patient with active disease was lost after three years. The remaining four patients were followed for over three years without evidence of recurrence of tumor. However, these 14 patients were assumed to have been dead for purposes of statistical evaluation. Thus all five year survival rates reported are absolute. Since postmortem examinations were not routinely obtained, no attempt has been made to determine causes of death other than cancer except in patients who died in the immediate postoperative period.

Specific treatment regimens and their resultant survivals are shown in Table IV.

TABLE IV

	# Patients	Patient Surv. 5 Years	% Survival
No Treatment	21	0	0
Irradiation Only	43	4	9
Irradiation and Simple Hysterectomy	42	24	57
Irradiation and Radical Hysterectomy	48	35	73
Simple Hysterectomy only	15	10	67
Radical Hysterectomy only	6	3	50
Other	5	1	20
TOTAL	180	77	43

RESULTS OF TREATMENT

Included in the "other" category are a total exenteration, one subtotal hysterectomy, and three exploratory laparotomies who received no subsequent irradiation. Because of the selective treatment and the small numbers of patients in each group individual survivals are not comparable. The overall survival for the entire study group was 43 percent. The five year survival in patients receiving definitive surgery with or with-

out irradiation was 65 percent. Survival in the patients treated with irradiation and surgery was 66 percent. In the group which had only definitive surgery, the survival was 62 percent.

Nodal involvement was found in 13 patients (10 percent) of the 116 patients undergoing laparotomy. Of the patients with positive nodes, two survived five years. One had a radical hysterectomy with node dissection combined with radiation, and the other had intrauterine cobalt-60 and a total abdominal hysterectomy, followed by external irradiation.

Four different methods were used in an effort to determine prognosis: (1) age of the patient at diagnosis, (2) Radiumhemmet classification, (3) clinical staging of disease, (4) evidence of residual carcinoma in the surgical specimen. The results of these evaluations are presented in the following tables.

TABLE V

Age less than	Patients	Lived 5 or more years after diagnosis		Expected Survival in normal female population
		Number	% Survival Rate	
40	7	5	71	99
40-49	21	12	57	98
50-59	54	29	54	96
60-69	62	24	39	99
70+	36	7	20	81

SURVIVAL ACCORDING TO AGE AT DIAGNOSIS

Table V compares survival with age at diagnosis. There is a steadily decreasing survival rate with increasing age.

TABLE VI

	Operable	Technically Operable	Inoperable	Refused Treatment
Number of patients	65	56	53	6
Patients surviving 5 years	43	29	5	0
Percent survival	66	52	9	0

SURVIVAL ACCORDING TO RADIUMHEMMET CLASSIFICATION

Table VI presents survival according to operability. The survival rate in those patients with operable lesions who were in satisfactory physical condition was 66 percent. In patients whose disease was technically operable but whose general physical condition was unsatisfactory the survival rate was reduced to 52 percent. In patients with far advanced disease the survival rate was only 9 percent.

TABLE VII

Stage	I	II	III	IV
Number of patients	106	21	24	29
Patients surviving 5 years	67	5	5	0
Percent survival	63	24	21	0

SURVIVAL ACCORDING TO STAGE OF DISEASE

Table VII shows survival by stage of disease. The survival rate was drastically decreased when the disease involved both corpus and cervix. Survival remained constant with intrapelvic spread but again dropped when the tumor extended beyond the pelvis.

TABLE VIII

	Residual	No Residual
Number of patients	75	44
Patients surviving 5 years	41	32
Percent Survival	55	73

RESIDUAL IN SURGICAL SPECIMEN

Table VIII shows survival according to residual tumor. There is a definite increase in survival with eradication of the tumor by preoperative intracavitary radiation.

TABLE IX

1. Postoperative deaths	7
2. Fistulas	10
a. Rectovaginal	2
b. Vesicovaginal	3
c. Uretero-vaginal	3
d. Recto-uterine	2
3. Postoperative hemorrhage	3
4. Perforation of the bladder	1
5. Perforation of the colon	1
6. Ureteral transection	1
7. Wound dehiscence	3
8. Pulmonary embolus	2
9. Myocardial infarction	2
10. Acute renal failure	1
11. Pneumonia	2
12. Pyelonephritis	8
13. Atelectasis	1
14. Paralytic Ileus	4
15. Thrombophlebitis	2
16. Intestinal obstruction	5
17. Rectal stricture	2
18. Radiation proctitis	3
19. Vault prolapse	2
20. Perforation of the uterus at implant	3

COMPLICATIONS

Complications encountered in treatment of the disease are listed in Table IX. Some patients had several complications, therefore this list is not additive.

Seven patients died in the postoperative period. Two patients died following implant; one from a pulmonary embolus; the other suffered a myocardial infarction. One patient with peritoneal metastases died in the recovery room following an exploratory laparotomy. A total exenteration was performed on a patient with a Stage

III lesion, and she did not survive the procedure. Uncontrollable hemorrhage was encountered in a patient with a Stage III lesion in which a radical hysterectomy was performed. The pelvis was packed abdominally to control the hemorrhage. Subsequently she developed a sub-diaphragmatic abscess and pneumonia and died. One patient died of bacteremic shock six days following a simple hysterectomy. One patient developed acute renal failure following a radical hysterectomy and subsequently died.

Ten patients developed fistulas following therapy. Three of these had received only irradiation. Two patients with Stage IV lesions developed rectouterine fistulas following external irradiation alone. One patient with a Stage II lesion developed a vesicovaginal fistula following external irradiation and intrauterine cobalt capsules. Of the 54 patients undergoing radical hysterectomy four developed fistulas. One of these had had no previous irradiation. The bladder was entered and repaired during the operative procedure. This patient subsequently developed a vesicovaginal fistula. Three patients developed ureterovaginal fistulas following implant and radical hysterectomy. One patient developed a rectovaginal fistula following implant and simple hysterectomy. One patient who clinically had a Stage I lesion was treated by simple hysterectomy alone, because of large uterine fibroids. Postoperatively she developed a rectovaginal fistula, a vesicovaginal fistula and intestinal obstruction. She died one year post operatively with a fixed pelvis and metastasis to the lungs.

One hundred ten implants were attempted. During this procedure the uterus was perforated on three separate occasions. The implants were removed on these three patients, and they underwent immediate hysterectomy.

DISCUSSION

The study presented in this evaluation is somewhat unique. It is the study of a disease more common in the economically prosperous but here limited to indigent patients from a rural area.

The average age at diagnosis reported by most authors range from 55 to 58 years.³ The age at diagnosis in this group was 61 or approximately four years greater. Unfortunately the duration of symptoms could not be calculated, so no comparison of this factor can be made. Table V demonstrates that in our hands the five year survival rate declines with increasing age and contrasts

markedly with the expected survival rates for each age.

Formerly the accepted textbook ratio of endometrial-cervical carcinoma was 1.8⁵ but in most recent publications the accepted ratio is 1:3. The ratio in this hospital during the period of study was 1:8.4. This is consistent with the ratio found thirty to forty years ago.

The extent of the advancement of the disease in the patients in this study was greater than that found in other reports. Kottmeier¹² reported that 11 percent of the patients in his group were inoperable; Boutselis⁵ reported 10 percent and Andersen and Stephens³ found 6 percent. Fifty-three patients (29 percent) in this group were clinically inoperable. However, ten of them received intracavitary cobalt and sixteen received definitive surgery with or without irradiation.

The five year survival in this group was 10 percent. Of the patients surviving five years, one patient received irradiation alone and the remaining four were treated with irradiation combined with surgery.

Although the carcinoma was felt to be surgically resectable in an additional 31 percent of the patients, their physical condition was such that intervention was considered hazardous. However, 38 were treated surgically and 26 (68 percent) survived five years. Of the patients not treated surgically, only 25 percent survived five years. However, this is not a valid comparison because the general physical condition of the patients not surgically treated was such that many would probably have died of intercurrent disease within the five year period.

Of the 100 patients with Stage I lesions who consented to treatment only 53 were considered to be operable. The survival rate in those patients with early lesions who were in relatively good physical condition was 74 percent. In the remaining patients whose general health was not felt to be satisfactory, the survival rate was 57 percent.

Also, there is a significant difference in the five year survival rate, depending upon whether there was residual cancer in the surgical specimen. This is probably an indication of the radioresistance of the tumor and the extent of the original disease.

In evaluation of the different modes of therapy, patient selection is such as to make any comparison invalid. Although there is an apparent significant difference between the patients treated

with radical hysterectomy and irradiation versus simple hysterectomy and irradiation, this comparison would be unjust. Patients whose general physical condition was poor or in whom a radical hysterectomy would have been technically difficult were often treated with the less difficult, shorter procedure.

The complications encountered in the adequate treatment of this disease are not insignificant. Careful evaluation of each patient regarding her capabilities to withstand any contemplated procedure should be undertaken. Every effort should be put forth to assure that the patient is in the best possible physical condition prior to performing any procedure. These efforts will not eliminate the complications of therapy, but they will reduce them to a minimum.

From this study group it is apparent that age, extent of disease, general physical condition and residual tumor in the surgical specimen are all valuable prognostic signs in predicting the five year survival. We have no control over the age of the patient or the radio-resistance of the tumor. By continued efforts to educate the general population regarding the early symptoms of endometrial cancer, diagnosis of the disease can be made earlier. By continuing to improve general medical care, the general physical condition of the patient will perhaps be improved. Only through these methods can we hope to significantly lower the mortality rate from this disease.

SUMMARY

1. Evaluation of 180 consecutive patients with endometrial carcinoma at the University of Arkansas Medical Center has been undertaken.
2. The incidence has been compared with that of cervical carcinoma; and the age distribution,

parity, race, endocrine dysfunction and associated conditions such as obesity, diabetes, and hypertension have been reviewed.

3. Complications of treatment have been presented.

4. The prognostic value of age, classification, staging and residual carcinoma in the surgical specimen has been evaluated.

CONCLUSIONS

Age, classification, staging and residual carcinoma in the surgical specimen are of significant prognostic value in the prediction of the five year survival of the patient.

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Normal Values for Serum Glutamic Oxalacetic Transaminase and Lactic Dehydrogenase Activities

J. S. Annino (University Hosp, Boston) *Amer J Clin Path* 46:397-400 (Sept) 1966

Serum glutamic oxalacetic transaminase (SGOT) and lactic dehydrogenase (LDH) activities were measured in 100 healthy individuals (50 men and 50 women) ages 20 to 70 years. Using the method of Reitman and Frankel the mean and

standard deviation for SGOT activity were 18.8 ± 5.6 R-F units. Using the method of Wacker, Ulmer, and Vallee the normal mean and standard deviation for LDH activity were 67.8 ± 14.3 Wacker units. There was no practical significant difference related to age or sex for either enzyme. The magnitude of the activities in these two enzymes showed no correlation with each other in individual subjects.

The Effect of Therapeutic Drugs on the Conduct of Anesthesia

Robert B. Sweet, M.D.*

It has been estimated that during the past two decades there have been over 600 new drugs introduced into the practice of medicine. Some drugs produce their desired effects harmlessly; others achieve their effectiveness while causing adverse side reactions. The latter may become apparent only when the patient is under severe stress, as during a surgical operative procedure and anesthesia. Since it may take several years of clinical usage before all of the constituents and properties of a new drug become evident, it is obviously impossible for even the well-informed physician to become fully cognizant of the action and interaction of this tremendous proliferation of new drugs.

The therapeutic drugs which concern the anesthesiologist are numerous but I have elected to divide these into five separate groups. There are others but these represent our primary problems at the present time. These categories are as follows: 1. Corticosteroids, 2. Antibiotics, 3. Antihypertensives, 4. Diuretics, and 5. Mono-amine oxidase inhibitors.

Corticosteroids

In addition to the beneficial effects of cortisone, the drug is also capable of causing adverse effects. It is now appreciated that individuals who have received therapeutic doses of corticosteroids as recently as six months to one year prior to anesthesia and surgery, may present a severe problem of hypotension and shock as a result of the patient's inability to respond to stressful situations unless given an adequate preanesthetic steroid prep.¹ While there are variations in the recommended cortisone preps, in most instances this involves the intramuscular injection of approximately 200 mg. of cortisone acetate at 12 hours and 2 hours prior to anesthesia with 100 mg. of hydrocortisone hemisuccinate available in the operating room to be given intravenously if necessary. Postoperatively the cortisone is slacked off in ever-decreasing doses over a period of 48-96 hours.

Two questions often asked us by our colleagues

are: 1. What dose of cortisone administered over what period is necessary to produce adrenal-cortical suppression?, and 2. How much time must elapse after cortisone therapy before it is safe to produce anesthesia and perform a surgical procedure?

Answers to these questions must be relative and can never be absolute. Theoretically, any kind of cortisone which is in excess of the daily requirement might suppress the production of corticotrophin by the pituitary body. From a practical standpoint, there is no "simple test" which can be used to predict the patient's response to stress. Even if a quantitative test were available to measure the capacity of the adrenal glands to compensate for stress, it still would not be possible to estimate objectively the degree of stress imposed by various operations on different individuals.

After 10-12 years of experience with this problem the anesthesiologist now recognizes his responsibility in determining before anesthesia which patients have received cortisone therapy in the past. In general, most anesthesiologists feel that a patient who has had therapeutic doses of cortisone up to six months to one year prior to anesthesia should be seriously considered for a cortisone prep. These patients do not seem to respond particularly well to any specific anesthetic agent, but their survival depends primarily on good preoperative preparation, careful monitoring during anesthesia, and close observation in the postoperative period with a gradual weaning of the patient from cortisone.

Antibiotics

The antibiotics have proven to be a problem to the anesthesiologist and surgeon only under certain rather specific circumstances.^{2,3,4} Neomycin has been the primary offender, although streptomycin and polymyxin-B as well as others have been reported to play a minor role at times. Neomycin is capable of producing muscle relaxant effect, when it reaches an overwhelming blood level, very similar to that produced by curare. There are numerous case reports in the literature where the patient received an ether anesthetic and then during the course of surgery, the surgeon elected to

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flood the peritoneal cavity with neomycin under circumstances where there was peritoneal contamination. These patients developed total apnea and some expired. At the present time the surgeon rarely uses these drugs in large doses intraperitoneally, but if he should the anesthetist must recognize the danger of combining these agents with an ether anesthetic and should instead consider some other agent or technique which does not have an additive muscle relaxant effect. If this is not possible or the apnea occurs despite the precautions the anesthetist should recognize the etiology of the problem and reverse the apnea as he would with curare, using first atropine and then neostigmine.

Streptomycin has likewise been implicated as an etiologic agent in the production of apnea where large amounts have been given with rapid uptake. Clinically, it appears to require one to two grams in children, administered either intravenously or into the peritoneal cavity, to produce severe respiratory depression. The neuromuscular block brought about by streptomycin interferes with the liberation of acetylcholine by producing a calcium deficiency. The administration of calcium chloride (200-500 mg) reduces dramatically this type of neuromuscular block. In contrast the administration of neostigmine results in a slow and incomplete reversal.

Antihypertensives

These drugs are numerous and frightfully complicated. The therapeutic action of most of these potent antihypertensive agents are directed primarily at interference with the functioning of the sympathetic nervous system. This may be accomplished in several ways: 1. Ganglionic blockade, 2. Central adrenergic blockade, 3. Interference with noradrenalin synthesis, and 4. Depletion of the catecholamine stores.⁵

The ganglionic blocking drugs such as Arfonad and Pentolinium tartrate tend to lower the blood pressure by decreasing the sympathetic tone to the various vascular areas. The primary objective in using ganglionic blocking drugs in hypertensive disease is the reduction of the peripheral resistance. If blood pressure is maintained at an elevated level as a result of the presence of a vasoconstrictor compound, as in pheochromocytoma, ganglionic blocking drugs are not effective in reducing it. On the other hand, if the sympathetic tone is high or the blood vessels are very sensitive to the tonal influence of the sympathetic sys-

tem, a marked fall of blood pressure will be elicited by the ganglionic blocking drugs. Postural hypotension and side effects due to blockade of the parasympathetic ganglia renders this group of drugs less useful than some of the others in the treatment of hypertension. The hypotension obtained by these drugs under anesthesia may be counteracted by the administration of synthetic or natural occurring catecholamines.

Another group of drugs, represented by Guanethidine (Ismelin) and Bretylium Tosylate (Darenthin), cause decreased sympathetic activity by an early sympathetic neuronal blockade. Guanethidine causes a depletion of norepinephrine at the peripheral nerve endings but appears also to cause a sympathetic neuronal blockade at a time when catecholamines are not yet depleted in the nerve. This agent is not a ganglionic blocking agent and does not prevent the actions of injected catecholamines. Guanethidine has the advantage of not affecting parasympathetic ganglia.

Alpha-methyldopa (Aldomet) brings about its hypotensive action by interfering with noradrenalin synthesis. Although it inhibits the synthesis of norepinephrine, norepinephrine levels in the brain remain low for a much longer time than Serotonin levels. Methyldopa depletes norepinephrine from the tissues and also impairs its binding to them. In man, after treatment with Aldomet, single intravenous doses of norepinephrine cause a slightly greater peak elevation of blood pressure and a three-fold prolongation of its action.

The Rauwolfia alkaloids counteract hypertension by depleting catecholamine stores centrally from the hypothalamic centers and peripherally from the postganglionic sympathetic nerve endings.⁶ The catecholamine content of the heart, brain, and adrenal medulla is greatly diminished by Reserpine. As a result of this depletion of norepinephrine from the postganglionic nerve endings, stimulant effects of these nerves on the myocardium and peripheral vascular bed are greatly diminished or abolished. Although Reserpine itself disappears rapidly from the body, the catecholamine stores are replenished gradually over a 10-14 day period. The drug not only causes a release of amines, but also blocks their uptake. It does not, however, block the synthesis or action of catecholamines.

Another group of drugs which exert an action on blood pressure although they have many other

actions is the group known as the Phenothiazine tranquilizers with Chlorpromazine or Thorazine being the prototype of this group. Among the peripheral actions of thorazine, perhaps the most important is its adrenergic blocking effect. Recently it has been recommended by some that Thorazine be used in 12.5 to 25 mg. doses intravenously in patients who are in shock, taking advantage of this adrenergic blocking effect to decrease peripheral resistance and thereby increase blood flow to the vital organs. However, when thorazine is used by the psychiatrist for its tranquilizing effect the doses are in much greater magnitude with 300 mg. daily being a common dosage schedule.

It would appear that patients receiving antihypertensive or tranquilizing drugs have a significantly higher instance of hypotension during anesthesia. When anesthesiologists were first confronted with these patients it seemed reasonable to request that all elective surgical procedures not be undertaken until the patient had had at least two weeks during which time he had been taken off all antihypertensive drugs. Shortly thereafter the "Ephedrine Response Test" was introduced in an attempt to predict more accurately the time when the patient might be suitable for elective surgery. This test is based on the fact that several synthetic vasopressors such as ephedrine act mainly in an indirect fashion in that they require the presence of a natural occurring catecholamine to affect vasoconstriction. Small doses of ephedrine sulfate were given intravenously and the blood pressure and pulse rate were monitored every 30 seconds. If the blood pressure rose or if there was any increase in pulse rate, the test was stated to be positive and the patient was deemed ready for surgery. No response to the ephedrine was interpreted as a negative test and the patient was stated to be unsuitable for surgery and the catecholamines were still in a state of depletion.⁷

After having more experience in the administration of anesthesia under emergency situations where the patient was on antihypertensive drugs, it would now appear to be the opinion of many anesthesiologists that these patients can be controlled easily by the use of a proper vasopressor if hypotension develops and that there might be a distinct advantage in having the patient's hypertension under control up to the time of surgery.⁸

Diuretics

The diuretics, especially the Thiazide derivatives, are probably the most widely used antihypertensive drugs today. They are often used in combination with one or more of the drugs which have been previously discussed and they potentiate the antihypertensive action. After treatment with a drug such as Diuril a diminished response to norepinephrine may be observed. The decreased vascular reactivity to norepinephrine appears to be related to sodium depletion in the peripheral vascular wall. Also, a serious potassium depletion may be produced. A low serum-potassium level will cause alterations in cardiac function and enhance the toxic effects of Digitalis. The effect on non-depolarizing muscle relaxants are likewise potentiated in the presence of hypokalemia. Therefore, a smaller dose of Curare will produce neuromuscular blockade of longer duration and greater intensity. Patients who are on this type of diuretic therapy should have serum electrolytes drawn prior to their surgical procedure. If the sodium and potassium abnormalities are corrected, one could anticipate few hypotensive problems during anesthesia as a result of the previous administration of a diuretic.

The final group of drugs which we are considering are the mono-amine oxidase inhibitors.⁹ The mono-amine oxidase (MAO) enzyme system is a complex one and is widely distributed throughout the human body. Mono-amine oxidase is the main enzyme concerned in the breakdown of 5-hydroxy tryptamine (5-H.T.). Catechol-O-Methyl transferase is the enzyme primarily concerned with the catabolism of circulating catecholamines. These two enzymes probably regulate the concentration of catecholamines and 5-H.T. within the cells and limit their duration of action when they are released into the body fluids. The major use of the mono-amine oxidase inhibitors is for their antidepressant action. It has also been claimed that the monoamine oxidase inhibitors may have a beneficial effect in angina pectoris but it would appear that there is no objective evidence to indicate that the coronary circulation is improved but rather the beneficial effect arises from the change in response of the patient to his pain. Experimentally the MAO inhibitors elevate the level of norepinephrine and serotonin in the brain and ganglia and other peripheral tissues. In addition, they prevent many of the actions of reserpine, including its ability

to lower amine levels. One of the toxic side effects seen with the MAO inhibitors is orthostatic hypotension. While the etiology of this hypotension is not known with certainty, it is supposed that the increased catecholamine concentrations in the ganglia tend to interfere with transmission. Because of this hypotensive effect one of the newer MAO inhibitors (Eutonyl) has recently been introduced as an antihypertensive agent.

Other adverse toxic reactions which have been reported with the use of the MAO inhibitors are hepatic toxicity and paradoxical hypertension. Patients should be warned not to eat cheese or take drugs that contain pressor agents or to drink alcohol while using the MAO inhibitors. Analysis of the amine content of various cheeses has shown that tyramine, with a vasopressor activity 1/20th to 1/50th that of adrenalin, was present in sufficient quantities to produce hypertension.

The combination of Demerol and MAO inhibitors should be avoided since it has been reported to produce hyperactivity, hyperflexion and coma.¹⁰ Two deaths, possibly due to the administration of this combination, have been reported.^{11,12} The mechanism of the reaction with Demerol is not known but it has been suggested that it is due to an interference with metabolism of the drugs detoxified in the liver. These MAO inhibitor drugs also appear to have a potentiating action on the barbiturates.

A fatal reaction to the injection of a vasopressor in a patient receiving a MAO inhibitor has been reported. The patient immediately developed a severe headache and hemiparesis and died two days later from a massive cerebral hemorrhage. This type of accident may well occur if a vasopressor is given during a general anesthetic and it is obvious that adrenalin and noradrenalin are potentially dangerous when combined with the MAO inhibitors and should be avoided if possible, or used with extreme care, until further information is available. Whenever possible it would seem wise to postpone an anesthetic for a period of two weeks after the patient has been taken off the MAO inhibitors.

In conclusion, it would appear that many of the problems confronting the anesthesiologist resulting from the interaction of therapeutic and anesthetic drugs could be avoided or prevented from reaching previous consequences if an accurate, detailed drug history would be obtained prior to the day of operation. However, with the

constant introduction of new drugs which affect multiple systems within the body it is essential that well conceived animal laboratory studies and careful clinical reporting continue.

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Glomerulonephritis: Observations by Light and Electron Microscopy

G. Osawa, J. Beres, and P. Kimmelstiel (University of Oklahoma Medical Center, Oklahoma City) *Amer J Clin Path* 46:295-304 (Sept) 1966

There is strong evidence that of the manifold lesions in the glomerulus seen by means of electron microscopy in glomerulonephritis, a subepithelial deposition, the hump, is pathognomonic. In 18 cases of glomerulonephritis the hump was found as long as seven months after onset of the disease, but it was absent if the glomerulonephritis was associated with heavy proteinuria. The hump was compared with other similar depositions occurring in glomerulonephritis, and criteria were established to distinguish these from each other and from the hump. Experimental studies with animals suggest the likelihood that the hump, at least in part, represents a deposition of antigen-antibody complex.

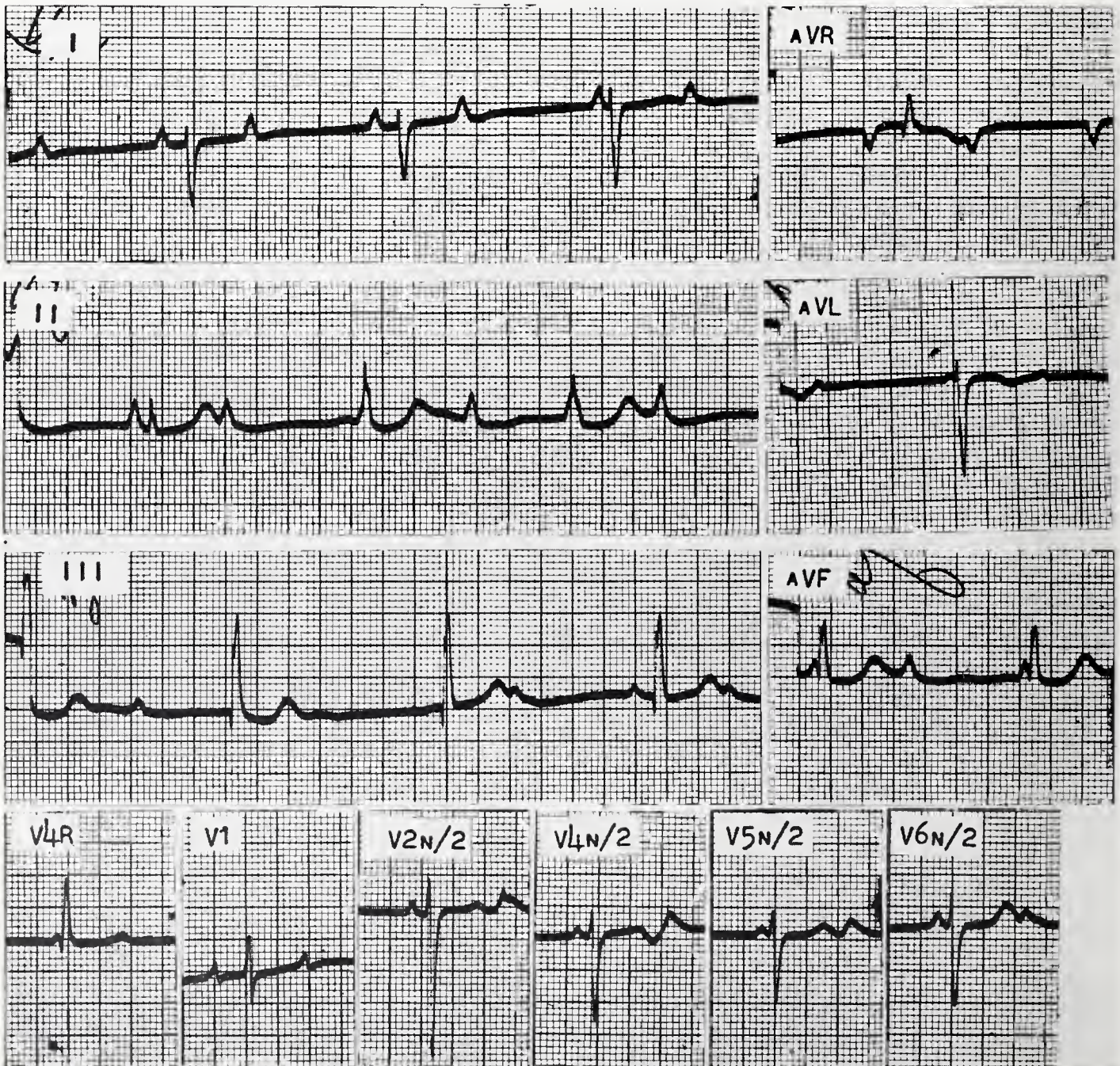


ELECTROCARDIOGRAM

OF THE MONTH

AGE: 6 SEX: F BUILD: Slender BLOOD PRESSURE: 100/60
CARDIAC DIAGNOSIS: Ventricular septal defect and pulmonary stenosis
OTHER DIAGNOSES: Congenital A-V block
MEDICATION: None
HISTORY: Asymptomatic

ANSWER ON PAGE 348

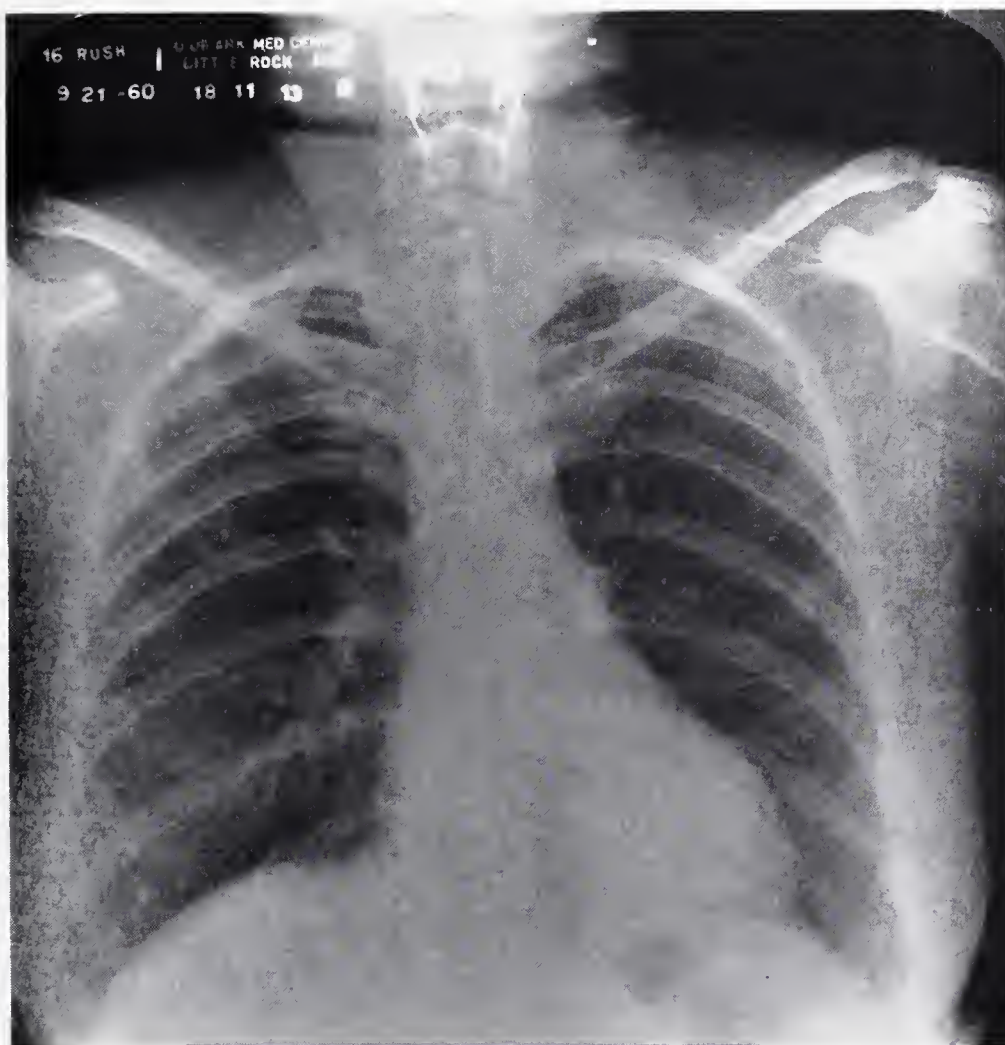


The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 348



HISTORY: Fifty-one year old white female with hypertension first discovered two weeks prior to admission. P. E. revealed a blowing systolic murmur best heard in the sixth intercostal space over the back just to the left of the vertebral column.



SEROLOGICAL REACTORS

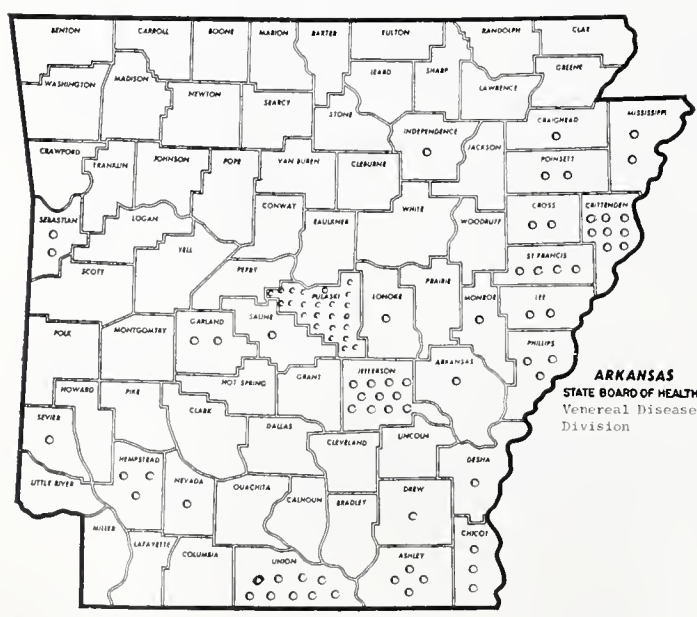
With the primary responsibility charged to any Health Authority being to keep the people healthy so far as possible, many methods must be utilized to achieve this end. Communicable diseases, more especially, venereal diseases, take on special significance in maintaining an environment as free from disease as possible because of their related social affiliations. Because a venereal infection has deep social roots, great caution must be observed by those responsible for venereal disease control when performing interpersonal tasks such as interviewing, contact tracing, and the like. Techniques must be used that are both ethical and acceptable to the dignity of each person contacted. One such technique or screening mechanism for syphilis employed by the Venereal Disease Division is the reactor follow-up program. This surveillance technique is designed so that the health department will receive the medical decision of a physician on each person with a reactive serologic test for syphilis, and in some in-

stances the doctor's permission to refer these individuals to a facility providing diagnostic and treatment services. Thus it is designed to guarantee that each reactor will receive the necessary medical services of diagnosis and treatment. People will not be mere statistics. Previously untreated cases will be reported. Epidemiology will be performed on infectious or recently infectious cases. Spread of the disease will be checked, and late manifestations of syphilis will be prevented.

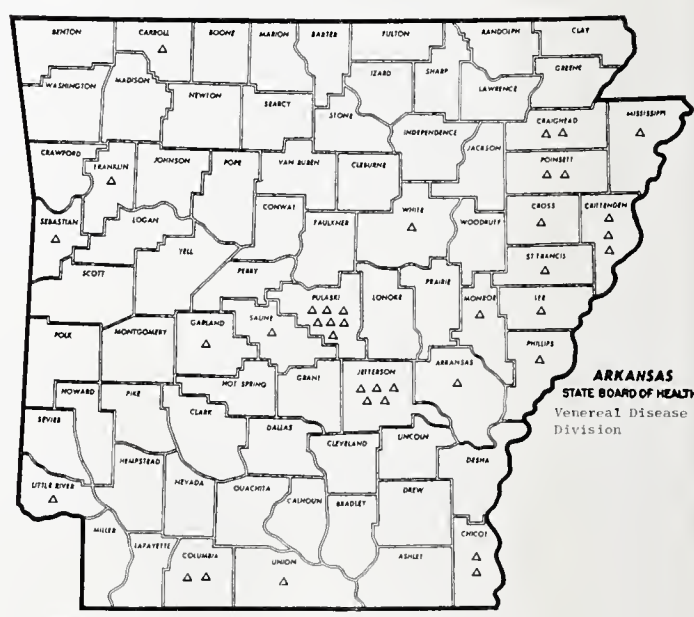
The laboratory reactor follow-up program does not challenge the prerogatives of the practicing physician. On the contrary, it provides, or assists in providing, services which the physician may choose to request.

The Venereal Disease Branch of the Public Health Service estimates that there are more than 350,000 reactive tests performed in the United States each year on which no action is taken by local health departments. No action is taken be-

Primary and Secondary Syphilis
Identified Through the Serological Reactor Program
January 1, 1965–September 30, 1966



Early Latent Syphilis
Identified Through the Serological Reactor Program
January 1, 1965–September 30, 1966



cause, in many instances, the results of these tests are not made known to the proper health authorities. Sadder still is that in many areas, although results may be known, there is no organized laboratory follow-up program.

The Arkansas reactor program operates on a voluntary basis. Reactors are reported daily through the state laboratory to our Venereal Disease Division. Proceedings are then initiated that will terminate in a speedy medical disposition. This swift action is not always possible as many hospitals and laboratories, if not confirming positive results with the state laboratory, report their reactors on a monthly basis. Speed is essential in any venereal disease control activity, but must assume especial significance in the reactor program because of the ease with which people move from place to place. Some have referred to the present generation as the mobility generation, and no better demonstration of this platitude can

be found than in the syphilis prone population. Source and spread analysis in Arkansas repeatedly emphasizes the important role mobility plays in the spread of this intolerable disease, involving movement within the state as well as national and even international.

Results of follow-up activity of reactors in Arkansas for the period covered are reported in the following table.

DIAGNOSTIC CHART			
January 1, 1965—December 31, 1965			
Number of Reactors	Primary & Secondary	Early Latent	Other
11,510	60	27	1,285
January 1, 1966—September 30, 1966			
Number of Reactors	Primary & Secondary	Early Latent	Other
7,978	31	11	958



Papillomatosis of Lung

D. B. Singer, S. D. Greenberg, and G. M. Harrison (Texas Children's Hosp, 6621 Fannin, Houston) *Amer Rev Resp Dis* 94:777-783 (Nov) 1966

Another case of broncho-alveolar papillomatosis associated with laryngeal papillomatosis is reported. Papillomas in the bronchi and alveoli led to bronchiectasis and necessitated right pneumonectomy when the patient was 19 years old. One year later, papillomas were found in the trachea and left bronchial tree. This case and six previously reported cases were compared and analyzed. The mechanism of involvement distal to the larynx seemed dependent on several factors. These included the inherent growth characteristics in a given papilloma, surgical manipulation, and tracheostomy. The eventual outcome of broncho-alveolar papillomatosis was unfavorable. Three of the seven reported cases died of the disease.

Assessment of Respiratory Function in the Asthmatic Child

R. S. Jones (Alder Hey Children's Hosp, West Derby, Liverpool, England) *Brit Med J* 2:972-975 (Oct 22) 1966

A new classification of asthma separates the fixed increase of airways resistance (mucosal thickening and luminal obstruction) from the labile component (mainly neuromuscular). Those with a forced expiration volume, one second, below the predicted normal level after maximum bronchodilatation with isoproterenol sulfate and 1 minute's exercise are separated off as group 3. The tendency to bronchoconstrict and dilate in response to the stimuli of a bronchodilator drug and exercise is used to divide the remainder into those with a high lability index (>30%, group 2), and those with a low lability index 20%-30%, group 1). In normal subjects it is >20%, and a value greater than this is essential for the diagnosis of asthma.



EDITORIAL

The Effect of Exogenous Adrenal Steroids on Cortisol Production

Alfred Kahn, Jr., M.D.

A normally functioning endocrine gland is almost invariably depressed if its hormone is supplied exogenously. If a patient in a euthyroid state is given thyroid extract the thyroid function is depressed. This same reaction occurs in the adrenal when there is an exogenous source of adrenal steroids.

Landon, Wynn, James, and Wood (*Journal of Clinical Endocrinology and Metabolism*, Vol. 25, page 602, May 1965) have reported on the "Adrenal Response to Infused Corticotropin in Subjects Receiving Glucocorticoids". It is known that glucocorticoids depress the release of the adrenal corticotropic hormone of the pituitary; the authors wanted to determine if the glucocorticoid substances directly impaired the adrenal gland and reduced the output of cortisol like substances. The technique used was one which permitted the actual measurement of plasma corticosteroid levels in response to ACTH given before and after the administration of exogenous glucocorticoids.

In 4 patients, 20 Mg. of prednisolone decreased the plasma corticosteroid response to ACTH. In a group of 50 patients the decrease in response to ACTH was related to dosage of exogenous glucosteroids administered. Maximum suppression of the adrenal occurred with 15 Mg. of prednisolone per day. Aside from the dosage of the glucocorticoid, the duration of the dosage also played a part in reduction of adrenal function; the longer courses caused more suppression even at maintenance dose levels. It is felt that this low plasma

level of cortisol like substance, after treatment with exogenous corticoids, is the result of reduced synthesis and not due to enhanced destruction.

The authors have speculated on whether or not the reduction in the formation of endogenous cortisol and related products was a direct effect on the adrenal gland or due to an inhibitory effect on the pituitary or the hypothalamus. Laboratory experiments indicated that adrenal slices were inhibited by exogenous sources of glucocorticoids. Direct evidence in man has not been obtained but Landon et al. gave large doses of dexamethasone during the infusion of pharmacological amounts of ACTH, and they found no direct inhibition of the adrenal gland. They feel that current evidence favors the idea that giving exogenous glucocorticoids impairs the synthesis and release of pituitary ACTH. Landon was unable to maintain the adrenal response by giving one large ACTH injection per week. Frequent, as for example daily ACTH injections, do seem to prevent adrenal atrophy and unresponsiveness.

It is of specific interest that research workers in this field believe that daily injections of ACTH for 4-5 days can usually restore the adrenal gland to responsiveness; the improvement is said to be considerable if not completely to normal.

In summary, adrenal gland responsiveness after exogenous glucocorticoids is injured indirectly by suppression of the pituitary; this is not a direct effect on the adrenal. Function of the adrenal can be restored completely, or in a large measure, by 5 daily injections of ACTH.

MEDICINE IN THE



MINUTES

House of Delegates, Arkansas Medical Society

3:00 P.M., Sunday, December 11, 1966

Albert Pike Hotel, Little Rock

The House of Delegates of the Arkansas Medical Society was called to order at 3:08 P.M. on Sunday, December 11, 1966, at the Albert Pike Hotel in Little Rock. The Vice Speaker, Amail Chudy, presided in the absence of Speaker Price.

Dr. Chudy called on William S. Orr, Jr., of Little Rock, for the invocation.

The roll of delegates was called by the Executive Vice President, Mr. Schaefer. Present were:

Delegates and members seated as delegates: ARKANSAS, R. H. Whitehead; BAXTER, John F. Guenther; BENTON, L. G. Pillstrom; BOONE, Henry V. Kirby; CHICOT, H. W. Thomas; CLARK, H. D. Luck; CLEBURNE, W. M. Wells; COLUMBIA, Paul Sizemore; CRAIG-HEAD-POINSETT, John B. Kirkley; Joe Verser; CRAWFORD, Jack N. Thicksten; DESHA, J. H. Hellums; DREW, Paul Wallick; GARLAND, Frank Burton, Robert McCrary; GREENE-CLAY, O. E. Bradsher; JOHNSON, James M. Kolb; LITTLE RIVER, James D. Armstrong; LOGAN, James Smith; MILLER, Karlton Kemp; MONROE, E. D. McKnight; NEVADA, Charles A. Hesterly; OUACHITA, Henry Hearnberger; PULASKI, T. Duel Brown, Alan Cazort, Thomas Jansen, Jerome Levy, James Morrison, J. L. Smith, William Snodgrass, Winston Shorey, William S. Orr, Jr., George Mitchell, John Schultz; SEBASTIAN, A. C. Bradford; UNION, Kenneth R. Duzan; WASHINGTON, J. Warren Murry, Arthur Moore, Friedman Sis-co;

Councilors: Hugh Edwards, L. J. Pat Bell, H. W. Thomas, T. E. Townsend, George Burton, Paul Sizemore, Karlton Kemp, John Wood, Robert McCrary, James Morrison, W. Payton Kolb, Stanley Applegate, Ross Fowler, A. S. Koenig;

Officers: President L. A. Whittaker, President-elect Joseph A. Norton, First Vice President Art B. Martin; Secretary Elvin Shuffield; Treasurer

Ben Saltzman; Vice Speaker Amail Chudy;

Past Presidents W. H. Mock, H. King Wade, Sr., T. Duel Brown, James M. Kolb, William Snodgrass, Joe Verser, Euclid M. Smith.

Others present were: Mr. Storm Whaley, Vice President for Health Sciences of the University of Arkansas; John T. Herron, State Health Officer; Mr. Eugene R. Warren, the Society's legal Counsel; Mr. Paul Harris of the Pulaski County Medical Society, Mr. A. M. Edwards of the AMA staff; Mr. Schaefer and Miss Richmond.

Dr. Chudy called on President Whittaker for special presentations. Dr. Whittaker presented plaques of appreciation to the following past presidents of the Society: W. H. Mock, H. King Wade, Sr., Euclid M. Smith, T. Duel Brown, R. B. Robins (accepted for Dr. Robins by Mrs. Walter Tate) and W. R. Brooksher. The following past presidents were not present to receive plaques: R. C. Dickinson, S. A. Drennen, Charles R. Henry, O. J. T. Johnston.

The Speaker recognized the chairman of the Society's Legislative Committee, Elvin Shuffield.

Dr. Shuffield announced that Mr. Lawrence Blackwell had submitted his resignation as Legislative Counsel for the Society and that it would be necessary for the House of Delegates to name a successor to him. He nominated Mr. Eugene Warren for the position, pointing out that Mr. Warren was well informed on matters of interest to the Society and was the best qualified person for the job. Upon motion of James Kolb, the House of Delegates voted to designate Mr. Warren as the Society's Legislative Counsel.

Dr. Shuffield discussed the recommendations of the Traffic Safety Committee which the House of Delegates referred to the Legislative Committee. He expects the State Police to sponsor legislation incorporating some of the recommendations. Dr. Shuffield suggested that the Society support, but not sponsor, such legislation. Upon motion of Jansen and Kolb, the House voted to follow Dr. Shuffield's suggestion.

Dr. Shuffield advised that a proposal had been



Let's get
down to earth
about
diuretics

**Does he really care?
Is he alert, encouraged,
positive and optimistic
about getting out of bed
and back to work soon?**

**Or is he giving in to
the depressing impact
of confinement?**

**When functional fatigue
complicates convalescence,
Alertonic can help...**

Pleasant-tasting Alertonic is pipradrol hydrochloride—an effective cerebral stimulant whose gentle analeptic action helps counteract the apathy and inertia that so often delay convalescence—together with an excellent vitamin and mineral formula, in a satisfying 15% alcohol vehicle.

Nothing fosters confidence and a sense of well-being better than your own personal warmth, understanding and encouragement together with Alertonic to help insure prompt response.

*Adequate dosage is important: Prescribe Alertonic—
one tablespoonful t.i.d., 30 minutes before
meals...tastes best chilled.*

*And for your patient's sake, prescribe Alertonic
in the convenient, economical one-pint bottle.*

Alertonic®

Available Only On Prescription

Each 45 cc. (3 tablespoonfuls) contains: alcohol, 15%; pipradrol hydrochloride, 2 mg.; thiamine hydrochloride (vitamin B₁) (10 MDR*), 10 mg.; riboflavin (vitamin B₂) (4 MDR), 5 mg.; pyridoxine hydrochloride (vitamin B₆), 1 mg.; niacinamide (5 MDR), 50 mg.; choline,† 100 mg.; inositol,† 100 mg.; calcium glycerophosphate, 100 mg. (supplies 2% MDR for calcium and for phosphorus) and 1 mg. each of the following: cobalt (as chloride), manganese (as sulfate), magnesium (as acetate), zinc (as acetate), and molybdenum (as ammonium molybdate).

*Multiple of adult Minimum Daily Requirement supplied.

†The need for these substances in human nutrition has not been established.

Indications: 1. Functional fatigue such as that often associated with: a depressing life experience or stressful time of life; advancing years; convalescence; limited activity or confinement. 2. Poor appetite and vitamin-mineral deficiency as they occur in: patients having faulty eating habits; geriatric patients who are losing interest in food; patients convalescing from debilitating illness or surgery.

Contraindications: As with other drugs with CNS stimulating action, Alertonic is contraindicated in hyperactive, agitated or severely anxious patients and in chorea or obsessive compulsive states.

Side effects: Reports of overstimulation have been rare. Patients who are known to be unduly sensitive to the effects of stimulant drugs should be observed carefully in the initial stages of treatment.

Dosage: Adults, 1 tablespoonful; children (over 15 years old), 1 to 2 teaspoonfuls; children (4 to 15 years old), 1 teaspoonful. To be taken three times daily 30 minutes before meals.

Merrell

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Cincinnati, Ohio 45215

submitted favoring Society sponsorship of legislation authorizing physicians' automobiles as emergency vehicles not required to observe posted speed limits and traffic signals. During the discussion, John McCollough Smith of Little Rock advised that in the Capital City ambulances are required to observe speed laws and observe all traffic signals. It is the consensus of the medical society in that locality that such restrictions are safer and more desirable. Upon motion of Verser, the House voted to support the recommendation of the Legislative Committee that the Society take no action in this regard.

Dr. Shuffield announced that the Society would again man a "sick room" at the Legislature and requested the assistance of the membership. The Headquarters Office was directed to send out the usual questionnaire form so that physicians may indicate the dates they would be available to serve at the legislature.

Dr. Shuffield discussed the legislation proposed by the Arkansas State Nurses Association, and suggested that the House take no specific action at this time. Upon motion of Shorey, the House voted to authorize Dr. Shuffield, as chairman of the Legislative Committee, to use his best judgment and consult with the Executive Committee on appropriate action in this regard.

Dr. Shuffield discussed legislation proposed by the State Police which will require compulsory physical examinations as a prerequisite for drivers license. Dr. Shuffield suggested that there should be a Medical Advisory Committee to rule on questionable cases so that it would not be up to the local physician. Upon motion of Kirkley the House voted to go on record as favoring such a provision in legislation of that type.

Upon motion of Koenig, the House voted to endorse the legislation proposed by the Health Department requiring confinement of rabid dogs.

Upon motion of Koenig and Brown, the House voted to endorse the Health Department's proposed revisions of the Food, Drug and Cosmetic Act to bring it up to the standards of the Federal law.

Upon motion of James Kolb and Alan Cazort, the House voted to leave the decision on Society endorsement of the Health Department's proposed Drug Abuse Law to the discretion of the chairman of the Legislative Committee, the Executive Committee, and the Society's Legislative Counsel.

Upon the motion of Koenig, the House voted to refer to the Executive and Legislative Committees for study and appropriate action the question of Society endorsement of the Health Department.

ANSWER—Electrocardiogram of the Month

RATE: V: 42 RHYTHM: Idio-ventricular rhythm. Atria: sinus with sinus premature systoles (?)

PR: — QRS: .09 QT: —

SIGNIFICANT ABNORMALITIES:

P-P intervals .56 and .78 alternately.
R-R intervals 1.4 with no relation to P waves.
Shifting atrial pacemaker in II and III.

INTERPRETATION: Abnormal

Complex arrhythmia as described above.

COMMENT:

I will appreciate your comments on this one.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Coarctation of the aorta.

X-RAY FINDINGS: Notching of the lower borders of the ribs bilaterally. The aortic knob is hypoplastic and the barium filled esophagus is displaced to the right by a poststenotic dilatation of the descending aorta.

ment's proposed meat inspection legislation.

Dr. Shuffield reviewed the action of the previous regular session of the Legislature regarding PKU testing and stated that he felt it would be impossible to prevent passage of legislation during this session which would require compulsory testing. After considerable discussion and upon the motion of McCrary and Townsend, the House voted to ask the Legislative Committee to report to the Legislators that the members of the Arkansas Medical Society feel that the question of PKU testing is a local matter that should be handled by the local physicians and that compulsory testing is opposed by the Arkansas Medical Society.

Dr. Shuffield asked Dean Shorey to discuss the legislation proposed by the Medical Center regarding a change in its admissions policies. Upon motion of Koenig and Norton, the House voted to endorse the brochure proposed by Dr. Shorey to explain the reasons for the requested change, and to endorse the proposed act to be submitted to the Legislature.

Dr. Shuffield urged all physicians present to go back home and discuss the issues with their legislators — pointing out that effective action starts with individual physicians contacting their own legislators.

H. W. Thomas, chairman of the Executive Committee, reviewed the action of the House in Hot Springs in May authorizing the Executive Committee to lease new office space for the Society headquarters. He reported that a proposal had been received for the leasing of a building to be constructed for the headquarters near downtown Fort Smith, at the rate of \$500 per month for a ten-year-lease period. He moved that the Executive Committee be directed to proceed with the leasing arrangement with details of the agreement to be worked out by the Executive Committee. After discussion and upon the substitute motion of James Kolb, the House voted to instruct the Executive Committee to carry on its investigation and report back to the House of Delegates during the Annual Session next Spring. Prior to the vote, the Speaker ruled that the motion did not affect the action of the House on record which authorized the Executive Committee to proceed with the leasing arrangement if they so desired.

W. O. Young reviewed the history of the proposed plan calling for the establishment of a Department of Mental Health for the State. Upon the motion of Payton Kolb, and James Morrison,

the House voted to give its approval to the plan.

It was announced that the death of G. D. Murphy, Jr., of El Dorado, created a vacancy on the Arkansas State Medical Board for the term expiring in December 1968. The House voted to submit to the Governor the name of George Wynne of Warren as the Society's nominee for the Board vacancy.

Upon motion of Applegate and Brown, the House adjourned at 4:50 P.M.

Amail Chudy, M.D.
Vice Speaker

**REPORT ON ACTIONS OF
THE HOUSE OF DELEGATES
AMERICAN MEDICAL ASSOCIATION
20th CLINICAL CONVENTION
NOVEMBER 27-30, 1966
LAS VEGAS, NEVADA**

LAS VEGAS, Dec. 1 — Education for family practice, billing and certification procedures under Public Law 89-97, proposed revisions of the Selective Service System, payments for professional services, compensation for house officers, and use of the terms "ethical" and "unethical" were among the major subjects acted upon by the House of Delegates at the American Medical Association's 20th Clinical Convention held November 27-30 in Las Vegas, Nevada.

Dr. Charles L. Hudson, AMA president, told the Monday opening session of the House that the need to improve existing services and establish new services for the total population should be a "top priority" of the medical profession. He proposed that the AMA and the state and county medical societies launch a continuing program, under predominantly private auspices, for all persons of whatever age, race, creed or color, and he emphasized that it is "among the needy and formerly indigent that I feel we must show interest, initiative and enterprise."

At the Wednesday session Dr. Robert Mayo Tenery of Waxahachie, Texas, general surgeon and past president of the Texas Medical Association, was elected to fill the unexpired term of the late Dr. William A. Hyland, ending June, 1969, on the Council on Constitution and Bylaws.

Final registration reached a grand total of 11,226, which was a record high for an AMA Clinical Convention, and that included 4,574 physicians, which was the third highest physician registration at a Clinical Convention.

Education for Family Practice

Calling it "a document of major importance on a subject of vital significance to the health care of the American public," the House of Delegates endorsed the recommendations of the Ad Hoc Committee on Education for Family Practice and authorized the Council on Medical Education to develop and initiate plans for their implementation. The long report contained the following recommendations:

"A. Major efforts should be instituted promptly to encourage the development of new programs for the education of large numbers of family physicians for the future, as described in the body of this report. The educational programs should relate to all levels of medical education, including pre-medical preparation, medical school education, internship and residency training, and continuing medical education. Keynotes should be excellence comparable to programs in other specialties and flexibility to permit the design of programs which will meet the needs and interests of individual physicians.

"B. Medical schools and teaching hospitals should be urged to explore the possibility of developing models of family practice, in cooperation with the practicing profession.

"C. New sources of financial assistance should be developed for the support of family practice teaching programs. Substantial funds should be made available for all aspects of the programs, including the conduct of the educational program, the recruitment and training of full-time faculty, the development of facilities and models of family practice, and the conduct of research in patient care and community medicine.

"D. Recognition and status equivalent to other medical specialties should be given to family practice. An appropriate system of specialty certification should be provided for those who have completed approved educational programs and have demonstrated their competence as family physicians. The graduate program (i.e., internship-residency program) should be an integrated whole, evaluated for accreditation by one body rather than two.

"E. Careful attention should be given to other factors which should make the environment for family practice more favorable and serve as incentives to medical students and young physicians to enter this field.

"F. Careful study should be made of the effect

of pre-medical programs and the admission procedures, curricula and student evaluation policies of medical schools upon the production of family physicians."

Delegates and other interested AMA members also attended an open hearing Tuesday morning on the report of the Citizens Commission on Graduate Medical Education, which is similar in many respects to the report of the Ad Hoc Committee on Education for Family Practice. The Commission report is still under study by the AMA Board of Trustees and Council on Medical Education. The House of Delegates urged every physician and medical society to study the report (commonly called the "Millis Report"), to evaluate it and to present comments and critique to the Board prior to the next session of the House.

Public Law 89-97

The House adopted a resolution urging that the American Medical Association advise the Department of Health, Education, and Welfare that the present requirements for certification and recertification have proven highly objectionable, unnecessary, and do not contribute to the quality of medical care.

It also recommended that the American Medical Association endeavor to bring about repeal of those portions of PL 89-97 in which the requirement for physician certification of medical necessity appears.

The resolution concluded by suggesting that the fiscal intermediaries and the American Hospital Association be advised that AMA will be available to assist in the development of appropriate amendments to this legislation. The purpose of this consultation would be to discuss the complexities of the present requirement and to invite participation in the development of amendments to the law which will be professionally acceptable and administratively workable.

The House also adopted a resolution declaring that the AMA strongly support amendment of the Social Security Act, including Title XIX, to permit payments without assignments for medical care of the patient.

The House rejected three resolutions and one report defining usual, customary and reasonable charges. Instead, it adopted a resolution which said that the definitions of the word "usual," "customary" and "reasonable" be considered, within the fundamental framework of individual determination, the responsibility of the constitu-

ent state medical societies, with the understanding that the advice and counsel of the AMA be made available to those states requesting such assistance.

Selective Service Proposals

The House adopted a report seeking federal legislation to establish a National Commission on Health Resources and Medical Manpower. The commission would revise the "doctor draft" system and establish physician allocation priorities to maintain a proper balance of health personnel in civilian and government service.

The report, prepared by the Council on National Security, cited three basic flaws in the Selective Service System as it pertains to the selection of physicians for military service: 1) There is no medical group directing the allocation of physicians; 2) There is no medical group directing the priorities to be used for calling physicians to active duty; 3) There is a need for a stronger medical voice within the Department of Defense.

The proposed commission would be appointed by the President with consent of the Senate. It would replace the Health Resources Advisory Committee and the National Advisory Committee to Selective Service.

Prescribing of Drugs

The House adopted a report by the Board of Trustees reaffirming the position of the AMA regarding the prescribing of drugs. The report states:

"The present policy of the American Medical Association is that physicians should be free to prescribe drugs generically or by brand name for *all* of their patients, whether they are paying, Medicare, or indigent patients—the primary consideration being the best interests of the patient. Medical considerations must be paramount in the selection of drugs. In addition, the physician also has an obligation to be mindful of the economic consequences of the treatment he prescribes."

Choice of a Laboratory

The House adopted a report of the Judicial Council which answered questions which have been raised about laboratory services. The report stated:

"Medical considerations, not cost, must be paramount when the physician chooses a laboratory. The physician who disregards quality as the primary criterion or who chooses a laboratory because it provides him with low cost laboratory

services on which he charges the patient a profit, is derelict in not acting in the best interests of his patient. However, if reliable quality laboratory services are available at lower cost, the *patient* should have the benefit of the savings."

Statement on Chiropractic

On recommendation of the Board of Trustees, the House adopted a policy statement submitted by the Committee on Quackery. The statement notes "the position of the medical profession that chiropractic is an unscientific cult whose practitioners lack the necessary training and background to diagnose and treat human disease" and pointed out that "decisions by the nation's highest courts [justify] the medical profession's educational program of alerting the nation to the public health threat posed by the cult of chiropractic."

Statement on Alcoholism

The House reaffirmed the 1956 policy statement on admission of alcoholics to general hospitals. The statement urged hospital administrators and medical staffs to look upon alcoholism as a medical problem and to admit patients who are alcoholics to their hospitals for treatment, with such admissions being made after due examination, investigation and consideration of the individual patient. The House, in Las Vegas, recommended more adequate implementation of the 1956 statement and urged that "insurance companies and prepayment plans be encouraged to remove unrealistic limitations on the extent of coverage afforded for the treatment of alcoholism."

Payments for Professional Services

To clarify AMA policies as they now exist, the House adopted the following eight-point statement regarding payment for professional medical services:

"1. It is proper for the physician to establish the fee which he charges to any patient for the professional service rendered, with recognition of the fact that a duly constituted committee of his peers may appropriately review and pass upon the equity and justice of his charge.

"2. It is proper for third party agencies to make payment of professional medical fees in behalf of patients, with recognition of the fact that the service of the physician has been to the patient and the liability for payment rests primarily with the patient or his family.

"3. It is proper for a physician to work cooperatively with other physicians in a team ap-

proach to the provision of medical service, with recognition of the fact that each cooperating physician is entitled to compensation according to the value of his services, and that the charges attributable to each physician's service shall be made clearly known to the patient.

"4. It is proper for a physician who provides personal supervision and direction for a physician-in-training to charge for the professional medical service rendered.

"5. A physician should not enter into a contract or agreement with a hospital whereby the hospital acts as the agent for a physician unless it is with the consent of the physician and of the medical staff. The physician and the medical staff, as principals, should not approve any contract whose terms or conditions are inconsistent with the Principles of Medical Ethics and established policy of the American Medical Association.

"6. Physicians, collectively in hospitals, may properly establish special medical staff funds, wholly under their own control, which they may support as they see fit and disburse as they may agree.

"7. Fees for professional medical services are properly paid only to the responsible physicians and may not be appropriated by any other person or agency.

"8. The physician is the sole arbiter as to the ways in which he may dispose of his professional income, without duress, consistent with the laws of the land and the Principles of Medical Ethics of this Association."

Compensation for House Officers

The House approved the first four sections of a joint report by the Council on Medical Education and Council on Medical Service. Those sections provided new guidelines on the utilization of private patients in teaching programs; recommended principles to govern the assignment of professional responsibility of house officers for the care of paying patients; presented interpretations of the 1961 statements by the House concerning remuneration of house officers and the increasing responsibility of the medical profession for the development of appropriate methods of financial support for interns and residents, and recommended a statement to guide medical staffs in the development of additional funds to supplement, if necessary, those from hospital sources.

The House then modified or added the final

four sections as follows:

E. The presently published provisions for payment under Part A, Title 18, Public Law 89-97 for services rendered to beneficiaries by interns and residents, and under Part B, Title 18, Public Law 89-97 for services rendered by attending physicians supervising interns and residents, are compatible with the organization and administration of programs of graduate medical education according to the standards of the American Medical Association. The principles embodied in these provisions should uniformly apply to regulations governing all other third party medical care plans.

F. It is recommended that sources and amount of compensation for house officers should be determined by local agreement and implemented in accordance with state laws and the ethical principles and policy positions of the American Medical Association.

G. The above principles should be widely publicized so that they may be understood and implemented in good faith by all concerned.

H. The broad and complex nature of the problems in the financial area is recognized, and continued studies and reports thereon by the Council on Medical Service are encouraged. These should include staff compensation, methods of fund collection, control and disposition, and other pertinent and related matters.

Use of the Terms "Ethical" and "Unethical"

The Judicial Council, which had been asked to comment on use of the terms "ethical" and "unethical," submitted the following report which was adopted by the House:

"Historically, the term 'ethical' has been used in opinions and reports of the Judicial Council and in resolutions adopted by the House of Delegates to refer to matters involving (1) moral principles or practices; (2) customs and usages of the medical profession; and (3) matters of policy not necessarily involving issues of morality in the practice of medicine. The term 'unethical' has been used to refer to conduct which fails to conform to these professional standards, customs and usages, or policies, as interpreted by the American Medical Association.

"Unethical conduct involving *moral principles*, values and duties calls for disciplinary action such as censure, suspension, or expulsion from medical society membership.

"Failure to conform to the *customs and usages*

of the medical profession may call for disciplinary action depending upon the particular circumstances involved, local attitudes, and how the conduct in question may reflect upon the dignity of and respect for the medical profession.

"In matters strictly of a policy nature, a physician who disagrees with the position of the American Medical Association is entitled to freedom and protection in his point of view."

Other Actions

In considering 63 resolutions, 22 Board reports and a wide variety of additional reports and materials from councils and committees, the House of Delegates also:

Approved establishment of a new *Committee on Continuing Medical Education* but also urged that lines of authority be clearly defined by the Board of Trustees in consultation with the Council on Medical Education in order to avoid duplication of responsibilities already assigned to the Council;

Instructed AMA members of the Joint Commission on Accreditation of Hospitals to express grave concern regarding the accreditation of hospitals in which *laboratories* are directed by non-physicians or physicians not adequately qualified in laboratory medicine.

Passed two resolutions opposing the "dual fee" practice of determining the rate of payment for a physician's services solely on the basis of his type of practice;

Approved a Board report recommending that *Social Security* laws be amended so that physicians entering the program for the first time may obtain earlier eligibility and improved benefits;

Recognized the increasing importance of *medical society review committees*, reaffirmed the guidelines published in the November 29, 1965, issue of *JAMA* and endorsed additional principles recommended by the Council on Medical Service;

Urged continuing, vigorous effort to dissuade local officials from demanding that physicians sign civil rights *compliance statements* that are not required by law or by federal directives;

Recommended that state medical societies seek the passage of state legislation which would provide a physician who serves on a *utilization review committee* immunity from litigation arising from the activities of such committees;

Asked that the Board of Trustees direct the Council on Legislative Activities to continue to

pursue with committees of Congress the need for amending the *Self-Employed Individuals Tax Act* to provide self-employed individuals with opportunities for deferring current earnings and taxes comparable to opportunities presently enjoyed by employed individuals;

Requested the Bureau of the Budget to modify the cost accounting system of *Veterans' Hospitals* to permit comparison with cost accounting in community hospitals to the end that economy, efficiency and patient care can be properly assessed in *Veterans' Hospitals*;

Reaffirmed its support of the principle that every ethical licensed doctor of medicine who needs and desires them should have *staff privileges*, commensurate with his training and skill, in at least one accredited community hospital;

Recommended that each *hospital* should have at least one voting doctor of medicine member on its *Governing Board* who, preferably, should either be appointed or elected by the hospital medical staff from its membership;

Pointed out that there is a definite need for utilization committees and declared that *tax supported hospitals* and private hospitals should be governed by the same utilization standards;

Approved Board recommendations that "the AMA support the need for a significant improvement in the income of the *registered nurse*" and that "the AMA continue to support in principle all current nationally approved educational programs for nurses";

Agreed with the Board that the Council on Postgraduate Programs be renamed as the *Council on Scientific Assembly* and that its functions be redefined to enable concentration on AMA scientific meetings;

Adopted a resolution that the AMA take measures to insure the attention of medical societies to the need for appropriate utilization of *retired physicians and inactive nurses*;

Passed a resolution on the determination of *Elderly applicants'* eligibility for automobile liability insurance and driver licensure which said that "although physicians are willing to examine applicants and determine whether or not the applicant meets specified physical standards for automobile liability insurance or for licenses to operate motor vehicles, the determination of what standards should be required or whether the driver is insurable and should be licensed to drive is the responsibility of the insurance companies con-

cerned and of the state agencies issuing licenses, respectively”;

Rescinded Resolution 104 which had been adopted by the House in June, 1966;

Endorsed the principle of *free choice* of physician and medical facility under Title XIX of Public Law 89-97;

Urged that the AMA continue to promote constructive legislation improving *existing governmental health plans* and continue to offer constructive advice;

Authorized the Board of Trustees to continue the *AMA Members Disability Program* beyond August 31, 1967; make every effort to continue the program with the same premium-benefit structure; clarify the existing program, and, if necessary, renegotiate a revised program which will be financially sound and will provide the best possible benefits and protection for present and future participants;

Approved a Board recommendation that no special section of *The AMA NEWS* be set aside for county society communications, but that news of county society activities continue to be an important part of *The AMA NEWS*;

Agreed with the Board that, effective January 1, 1967, the AMA should discontinue paying for the rental of the *TWX equipment* in state medical society offices.

Recommended that *driver education* should be an integral part of the secondary school curriculum and be offered to all students;

Approved a Council on Medical Service report providing guidelines for collaboration of physician, social worker and lawyer in helping the *unmarried mother* and her child, and;

Referred to the Board, for consideration and appropriate implementation, a resolution urging the AMA to expand its programs and studies in the field of *crime prevention*.

Awards and Presentations

At the Monday opening session Dr. Milford O. Rouse, AMA president-elect and former speaker of the House, was presented with a mounted gavel in appreciation of his many years of service to the House and the Association.

Contributions totaling more than \$500,000 were presented on Monday to the American Medical Association Education and Research Foundation. They were as follows: Merck, Sharp and Dohme, \$100,000; California Medical Association, \$207,985; Illinois State Medical Society, \$185,000;

Utah Medical Association, \$12,957.50; Medical and Chirurgical Faculty of Maryland, \$9,110, and American Urological Association, \$1,000.

Glen W. Geelhoed of Ann Arbor, a medical student at the University of Michigan, was announced on Tuesday as first-place winner in the Norman A. Welch, M.D., Medical Ethics Essay Contest sponsored by the AMA Judicial Council. At the same session the delegates heard an address by Dr. Malcom E. Phelps, field director of the AMA Volunteer Physicians for Vietnam, who said that the American physician is making a “tremendous impression” on the South Vietnamese people.

F. J. L. Blasingame, M.D.
Executive Vice President
American Medical Association

PHYSICIAN MANPOWER: FOREIGN TRAINEES

Foreign medical graduates serving as house officers in U.S. hospitals have made an increasingly important contribution to this country's physician manpower needs. Despite the temporary nature of their service, foreign medical graduates presently provide an annual manpower supplementation in excess of 10,000 physicians. While enrolled in internship and residency training programs, foreign-trained physicians nonetheless assume an important share of the responsibility for the patient care offered by the hospitals in which they serve. In 1950 foreign medical graduates filled 10 per cent of the internship positions and 9 percent of the residency positions in U.S. hospitals. In 1965 foreign medical graduates filled 24 per cent of internship positions and 29 per cent of residency positions in U.S. hospitals. The increase in foreign-trained residents from 9 to 29 per cent is particularly striking in view of the dramatic increase in the total number of residency positions filled from 14,495 in 1950 to 31,687 in 1965.

The number of U.S. and Canadian medical graduates who were interns in 1965 was 8 per cent greater than the 1951 total, while the number of interns that were foreign medical graduates had increased by 112 per cent. The same comparison for residents shows the number of U.S. and Canadian-trained M.D.s in residency program increased by 66 per cent, while the number of foreign-trained M.D.s in residency programs increased by 308 per cent. The increasing number of foreign-trained physicians serving in internship

TABLE 1
NUMBER AND PERCENTAGE OF TOTAL INTERNSHIPS AND RESIDENCES IN THE
U.S. FILLED BY FOREIGN MEDICAL GRADUATES 1950-65

Year	Internships Filled			Residences Filled		
	Total	By	% By	Total	By	% By
		Foreign-Trained M.D.s	Foreign-Trained M.D.s		Foreign-Trained M.D.s	Foreign-Trained M.D.s
1950	7,030	722	10.3	14,495	1,350	9.3
1951	7,866	1,116	14.2	15,851	2,233	14.1
1952	7,645	1,353	17.7	16,867	3,035	18.0
1953	8,275	1,787	21.6	18,619	3,802	20.4
1954	9,066	1,761	19.4	20,494	3,275	16.0
1955	9,603	1,859	19.4	21,425	4,174	19.5
1956	9,893	1,988	20.1	23,012	4,753	20.6
1957	10,198	2,079	20.4	24,976	5,543	22.2
1958	10,352	2,315	22.4	26,758	6,042	22.6
1959	10,253	2,545	24.8	27,590	6,912	25.0
1960	9,115	1,753	19.2	28,447	8,182	28.8
1961	8,173	1,273	15.6	29,637	7,723	26.0
1962	8,805	1,669	19.0	29,239	7,062	24.2
1963	9,636	2,566	26.6	29,485	7,052	23.9
1964	10,097	2,821	27.9	30,797	8,140	26.4
1965	9,670	2,361	24.4	31,687	9,113	28.8
Total	145,677	29,968	20.6	389,379	88,391	22.7

Source: AMA Council on Medical Education.

and residency programs in the United States in the period 1950-65 is shown in Table 1.

Although definitive figures are not available, it is estimated that more than 4,000 additional foreign medical graduates are annually serving in the United States in fellowship or research programs. A closer examination of the interns and residents in 1964 reveals considerable admixture within the categories utilized in Tables 1 and 2. The foreign-trained physicians serving as interns and residents included 1,332 U.S. citizens who had attended medical schools outside of the United States or Canada. Graduates of Canadian schools are not considered foreign medical graduates since Canadian medical schools are accredi-

ted by the identical mechanism used in the United States. 1964 a total of 1,032 graduates of Canadian medical schools including 304 foreign citizens served as interns and residents in U.S. hospitals as did 243 foreign citizens who had received their training in the United States.

Nonaffiliated hospitals utilize foreign medical graduates to a greater extent than do hospitals affiliated with medical schools, as shown in Table 2. Sixty-three per cent of the foreign-trained interns served in nonaffiliated hospitals in 1964 where they accounted for 33.5 per cent of interns on duty. Eighty-four per cent of the foreign-trained residents served in nonaffiliated hospitals where they accounted for 40 per cent of the residents on duty.

TABLE 2
NUMBER AND PERCENTAGE OF FOREIGN MEDICAL GRADUATES SERVING IN INTERNSHIP
AND RESIDENCY PROGRAMS OF AFFILIATED AND NONAFFILIATED HOSPITALS IN 1964

Type of Hospital	Internships Filled			Residences Filled		
	Total	By	% By	Total	By	% By
		Foreign-Trained M.D.s	Foreign-Trained M.D.s		Foreign-Trained M.D.s	Foreign-Trained M.D.s
Affiliated	15,587	3,046	19.5	4,142	439	10.6
Nonaffiliated	15,210	5,094	33.5	5,955	2,382	40.0
Total	30,797	8,140	26.4	10,097	2,821	27.9

Source: Education Number of the Journal of the American Medical Association, Vol. 194, No. 7, November 15, 1965.

Certification of foreign medical graduates by the Educational Council for Foreign Medical Graduates (ECFMG) became a requirement for interns and residents appointed after January 1, 1960. Contingent appointments after that date permitted foreign graduates to serve no more than 6 months on acceptance for the September 1960 American Medical Qualification Examination of the ECFMG. Effective December 31, 1960 prior examination and certification became a prerequisite for U.S. internship or residency appointments. This new policy probably resulted in the decreased number of foreign-trained interns that served in U.S. hospitals in the years 1960-62.

The real impact of foreign-trained physicians on hospital staffing lies not only in their total numbers but also in the manner in which they are distributed in U.S. hospitals. Within a given

hospital the number of foreign-trained house staff may range from as low as one out of a total of 60 or as high as 78 out of a total of 85.

THINGS



TO COME

The Annual Postgraduate Conference in Pediatrics will be held on March 24-25, 1967, at the Scott and White Memorial Hospital, Temple, Texas. The guest speaker will be Harry C. Shirkey, M.D., Director, The Children's Hospital, Birmingham, Alabama.



PERSONAL AND NEWS ITEMS

Doctors Perform Embolectomy

In December, Dr. John D. McCracken and Dr. John E. Allen, Jr. of Little Rock comprised the surgical team which performed the first successful open-heart embolectomy in Arkansas. The operation was performed on Major Joseph B. Jones of Little Rock Air Force Base.

AMA Re-appoints Doctors

At the AMA Clinical Meeting held in November at Las Vegas, Nevada, Dr. Joseph Norton of Little Rock was re-appointed to the AMA Committee on Medicine and Religion; Dr. Jack Kennedy of Arkadelphia was re-appointed to the AMA Committee on Medical Aspects of Sports, and Dr. Ben N. Saltzman of Mountain Home was re-appointed Chairman of the AMA Council on Rural Health.

Dr. Wise's Office Robbed

The office of Dr. John Wise of Malvern was robbed of about \$95.00 in cash in November. No other losses were discovered.

Dr. Patterson Appointed

Dr. Ralph M. Patterson of Hot Springs has been appointed to a one-year term on the board of directors of the Arkansas Chapter of the American Arthritis Foundation.

Dr. Martin Resigns

Dr. J. O. Pennington announced in November that Dr. Damon G. H. Martin, who had been his partner in the Ola Clinic, is no longer associated with him.

Doctors Discuss Tour

Dr. Everett M. McClintock of Little Rock and Dr. James Guthrie of Camden were speakers at a meeting sponsored by Phi Mu sorority at The Wesley Foundation at Little Rock University in December. Drs. McClintock and Guthrie discussed their recent tour of volunteer service on the Good Ship HOPE. A film entitled "The Project Hope" was shown.

Cancer Society Elects Officers

Dr. M. J. Kilbury, Jr. of Little Rock was elected president of the Arkansas Chapter, American Cancer Society for 1967. Dr. James H. Crowdon is vice president.



Mrs. Smith Is Speaker

Mrs. John McCollough Smith of Little Rock, President of the Woman's Auxiliary to the Arkansas Medical Society, spoke at a luncheon meeting of the Boone County Woman's Auxiliary in Harrison in December. Those present were: Mrs. Robert Langston, Mrs. R. E. Fowler, Mrs. H. V. Kirby, Mrs. Rhys Williams, Mrs. Ulys Jackson, Mrs. A. R. Hammon, Mrs. J. B. Wilson.



PROCEEDINGS OF SOCIETIES

Bowie-Miller Counties

Physicians and dentists from Texarkana and the surrounding area attended a seminar on "The Diagnosis and Treatment of Oral Cancer" in November at Wadley Hospital in Texarkana. The seminar was sponsored by the Bowie-Miller Medical Societies. Dr. W. E. Shields, President of the Bowie County Medical Society, and Dr. Robert Bransford, President of the Miller County Medical Society, were co-hosts for the seminar. A team of four doctors from the faculty of the University of Texas Southwestern Medical School in Dallas were present for the meeting.

Craighead-Poinsett Counties

The Craighead-Poinsett County Medical Society sponsored Diabetes Week, November 13-19, 1966. The annual diabetes detection drive in Northeast Arkansas is headed by Dr. William Garner of Jonesboro. Dr. Donald Neblett of Jonesboro is President of Craighead-Poinsett County Medical Society.

A lecture by Dr. I. Frank Tullis on "Problems Concerning Weight Reduction of Obese Individuals" was sponsored by the Craighead-Poinsett County Medical Society in November. Dr. Tullis is director of clinical research at the University of Tennessee College of Medicine.

Pulaski

New officers for Pulaski County Medical Society for 1967 are: Dr. William S. Orr, president-elect; Dr. Purcell Smith, treasurer; Dr. Gilbert O. Dean, president; Dr. Robert W. Ross, vice president; Dr. G. Thomas Jansen, secretary; and Dr. Lee A. Martin, treasurer-elect.



O B I T U A R Y

Dr. James Henry Scroggin

Dr. James H. Scroggin of Morrilton died November 10, 1966, at the age of 82. He was born at Solgohachia, July 7, 1884, a son of the late John Jonas Scroggin and Bettie Braudaway Scroggin. He was a member of the Christadelphian Church. He graduated from the University of Virginia School of Medicine and practiced medicine in Arkansas from 1909 until his retirement in 1962. He was a member of Conway County Medical Society, Arkansas Medical Society, and the American Medical Association. He is survived by two daughters.

Dr. Wallace H. Bollinger

Dr. W. H. Bollinger, well-known Charleston physician, died November 19, 1966, at the age of 84. Dr. Bollinger was a 1907 graduate of the Arkansas Medical School and he had practiced medicine for 61 years. He founded the Bollinger Hos-

pital in Charleston and he was a member of the Charleston First Baptist Church, the Franklin County Medical Society, the Arkansas Medical Society, and the American Medical Association. He is survived by his widow and one son.

Dr. Garland Doty Murphy, Jr.

Dr. Garland D. Murphy, Jr., aged 55, of El Dorado, died November 28, 1966, of injuries resulting from an automobile accident. Born at Champagnolle, February 4, 1911, the son of Dr. Garland Doty and Fanell Moore Murphy, he was a lifelong resident of Union County, a graduate of Ouachita College (now Ouachita Baptist University), Tulane University and the University of Arkansas School of Medicine. He joined his father in the practice of medicine at El Dorado after interning at St. Margaret's Hospital in Kansas City, Kansas. Dr. Murphy served in World War II as a flight surgeon. He held the rank of major in the Air Force at the time of his discharge. He took an active interest in the affairs of the American Legion, rising to national eminence in that organization. Dr. Murphy was a member of First Baptist Church, El Dorado Masonic Lodge No. 13, and a Shrine in Scimitar Temple, Little Rock. He was a member of the Boys Club of El Dorado, the board of Union Memorial Hospital, the State Medical Board, the Arkansas Amateur Athletic Assistants Board, the Union County Medical Society, the Arkansas Medical Society, the American Medical Association, the Academy of General Practice, and the American Society of Abdominal Surgery. He was a former president of the Arkansas State Medical Board of Examiners. Survivors include his widow, one son and his parents, Dr. and Mrs. Garland D. Murphy, Sr., of El Dorado.

Dr. Louis King Hundley

Dr. Louis K. Hundley of Little Rock, formerly of Pine Bluff, died December 23, 1966, at the age of 56. Dr. Hundley was born in Texarkana, the son of Mrs. Clara King Hundley and the late Reverend L. E. N. Hundley. He was graduated from Pine Bluff High School and he attended Hendrix College in Conway and received his bachelor's degree from Southern Methodist University at Dallas, Texas. He was graduated from the University of Arkansas Medical School in 1935 and did eye specialty work at Prince Clinic at Springfield, Illinois. He then spent four years in the U. S. Army as a physician during World

War II. Dr. Hundley organized the Jefferson County Mental Health Association and served as its first chairman. He was on the Jefferson County Board of Health for fifteen years and was chairman of the Board for ten years. He was a past president of the Community Concert Association and was on the Association board. He was also past president of the Pine Bluff Rotary Club, the Arkansas Medical Society, and the Jefferson County Medical Society. He was chief of staff at Jefferson Hospital. He was chairman of the Council of the Arkansas Medical Society for eight years and was vice councilor for Arkansas of the Southern Medical Association. Dr. Hundley was a past district governor of Rotary International and a teacher of the L. E. N. Hundley Sunday School class at Lakeside Methodist Church in Pine Bluff. Dr. Hundley was a physician in Pine Bluff for more than twenty years. He moved to Little Rock in March of 1966 due to ill health. There he became head of the Ophthalmology Department of the University of Arkansas Medical School. Survivors include his widow, his mother, a son, two daughters, and three grandchildren.



Cirrhosis-Enhancing Effect of Corn Oil

A. J. Patek, Jr., et al (Goldwater Memorial Hosp, New York) *Arch Path* 82:596-601 (Dec) 1966

Two groups of Sprague-Dawley rats were placed on a cirrhosis-producing diet, low in protein and choline. One was fed 10% hydrogenated corn oil and the other, 10% corn oil. As in previous studies, those fed corn oil developed severe hepatic fibrosis and cirrhosis, and those fed hydrogenated corn oil developed little fibrosis and no cirrhosis. Supplements of 0.05% and 0.1% chloride to these diets caused a sharp reduction in the accumulations of hepatic triglyceride and cholesterol and completely prevented cirrhosis. There may be metabolic antagonism between corn oil and choline, the nature of which is not clear. The concentration of triglyceride was as high in the livers of animals with cirrhosis as in those without cirrhosis at the time of autopsy. The concentration of cholesterol was significantly higher in the livers of rats with cirrhosis than in those without cirrhosis, so to say, in animals with normal livers.



Sponsored by Arkansas Tuberculosis Association

**ROLE OF A HISTORY OF PERSISTENT
COUGH IN THE EPIDEMIOLOGY
OF LUNG CANCER**

A history of persistent cough was found to be more common in a group of men with lung cancer than among the controls. However, because of the correlation between cigarette smoking and lung cancer, the role of cough independent of cigarette smoking could not be evaluated.

A history of persistent long-term cough is a common finding among patients with cancer of the lung. It is, therefore, of interest from both epidemiologic and diagnostic points of view to know whether such cough can affect the development of lung cancer.

The present study was carried out at the Memorial and James Ewing Hospitals in New York City. Interviews were held with 150 men with squamous or oat cell lung cancer and also with 300 men of comparable age without cancer of the respiratory tract, genitourinary cancer, or cancer of the upper alimentary tract, who served as controls. All the patients were consecutive hospital admissions.

In addition to the usual background questions, the patient was asked whether he coughed and produced phlegm. A "cougher" was defined as one who had coughed on most days of the year for at least a year. Questions concerning previous history of cigarette smoking were also asked. The median age of the study group and controls was in the 60-to-69-year period.

A history of persistent cough was found to be significantly more common in the group with lung cancer than in the control group, 69 per cent of the lung cancer patients giving a long-term history of persistent cough and 45 per cent of the control group. The majority of the coughers in both groups brought up phlegm in the morning.

ERNEST L. WYNDER, M.D., and E. PAYSON FAIRCHILD, JR.
American Review of Respiratory Disease, November, 1966.

CIGARETTE SMOKING

As for smoking, all those with lung cancer were smokers, whereas 14 per cent of the control group had never smoked. Of the smokers, 97 per cent of those with lung cancer were cigarette smokers compared with 69 per cent of the control group. Fifty-five per cent of the patients with lung cancer smoked 30 or more cigarettes a day compared with 22 per cent of the controls.

Patients with lung cancer had a somewhat greater tendency to cough than did the controls. Among those smoking 20 to 29 cigarettes a day, the patients with lung cancer had a significantly greater history of cough than the controls did. The difference in cough in those who smoked less was not significant.

Since the number of cigarettes smoked is not the sole indicator of the smoke exposure of a given smoker, several other factors were considered. One of these was the duration of smoking. Sixty-four per cent of the patients with lung cancer had smoked for more than 40 years compared with 42 per cent among the control group.

Another factor considered was the length of cigarette smoked. Of the patients who smoked 20 to 29 cigarettes a day, 86 per cent in the cancer group and 77 per cent of the controls smoked from three fourths of the length to the end of the cigarette. Of those who smoked 30 or more cigarettes a day, 82 per cent in the cancer group and 71 per cent of the controls smoked at least three fourths of the cigarette. The differences, though not large enough to be significant, were consistent.

There were no significant differences in claimed inhalation between the study and control groups among those who smoked 20 or more cigarettes per day. All 14 patients with lung cancer who smoked less than 20 cigarettes per day stated that they inhaled, whereas in the comparable control group, 21 per cent stated that they did not inhale. In the number of cigarettes smoked in the 20-to-29 category, 24 per cent of the cancer pa-

tients smoked 25 to 29 cigarettes a day compared with 16 per cent of the controls.

DURATION OF SMOKING

In the 20-to-29 cigarettes-a-day category, patients with lung cancer had smoked for a longer period of time, smoked their cigarettes to a shorter butt length, and smoked more cigarettes within the category than the controls. In addition, a larger percentage of the "light" smokers in the cancer group (those smoking less than 20 cigarettes a day) inhaled. These factors contribute to a greater intensity of cigarette smoking in the cancer group as compared with the control group. Whereas some of these differences are not significant, since the numbers involved are small, there appears to be a definite and consistent trend.

A significant difference was found in the history of persistent cough between lung cancer and control patients, a finding based on smokers who said they smoked less than 30 cigarettes a day. If cough, independent of cigarette smoking intensity, increases the risk of lung cancer in a cigarette smoker, it might be assumed that persistent cough would have been reported more frequently among the patients with lung cancer smoking 30 or more cigarettes a day than among the control group. However, no differences in terms of long-term cough were found.

Of epidemiologic interest is the finding that simple chronic bronchitis (or long-term persistent cough) among English smokers is not greater than among American smokers, and yet the incidence of lung cancer is much higher in Britain. This does not exclude the possibility that chronic bronchitis with recurring infections, a condition more common in Britain than in America, may contribute to lung cancer.

The question arises whether the pathologic changes associated with persistent cough (simple chronic bronchitis) might enhance, by some specific biochemical process, respiratory carcinogenesis. Since studies of ex-smokers have indicated that persistent cough disappears rapidly upon cessation of smoking, it would seem that at least some of the pathologic alterations leading to such cough are reversible.

This consideration does not exclude the possibility that persistent long-term cough, although not etiologically related directly to lung cancer, could indicate that an individual whose respiratory epithelium has been altered enough to lead to cough may be more susceptible to the carcino-

genic effects of cigarette smoke in the biochemically increased absorption and relation of certain smoke components.

In view of various epidemiologic considerations, evaluated for consistency and biologic meaningfulness, it appears that long-term persistent cough or simple chronic bronchitis has not been established as increasing an individual's risk of lung cancer, independent of cigarette smoking.



Parathyroid Adenoma in Children: Report in Three Cases, With Unusual Articular Manifestations in One Case

E. Chaves-Carballo and A. B. Hayles (Mayo Clinic, Rochester, Minn) *Amer J Dis Child* 112:553-557 (Dec) 1966

Three cases of hyperparathyroidism due to solitary adenoma in children are reported. One of these patients, a 13½-year-old boy, had knee effusions, synovial fluid examination, synovial membrane biopsy, uric acid clearance, and other laboratory data did not reveal the cause of the articular manifestations. Recent reports indicate that joint manifestations in primary hyperparathyroidism are more common than suspected previously in adults. A review of the 30 reported cases of parathyroid adenoma in children revealed associated joint abnormalities in five, a 17% incidence. No satisfactory explanation is available for the association of joint abnormalities with primary hyperparathyroidism.

Significance of S Waves in Limb Leads II and III

W. Evans (15 Harley St, London) *Brit Heart J* 28:829-834 (Nov) 1966

The significance of an S wave of any amplitude in the limb leads II and III, in the absence of an S wave in lead I, was tested in 100 consecutive cases. These were separated into three groups based on the amplitude of S wave in lead II. The first group held 21 patients in whom the S wave was greater than the R wave. In the second group there were 37 cases in which the S wave, although less than R, exceeded 1 mm. The third group was made up of 42 cases where the S wave measured 1 mm or less. As an index of a myocardial fault, the three grades of S wave amplitude held equal place.

March, 1967

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 63 No. 10

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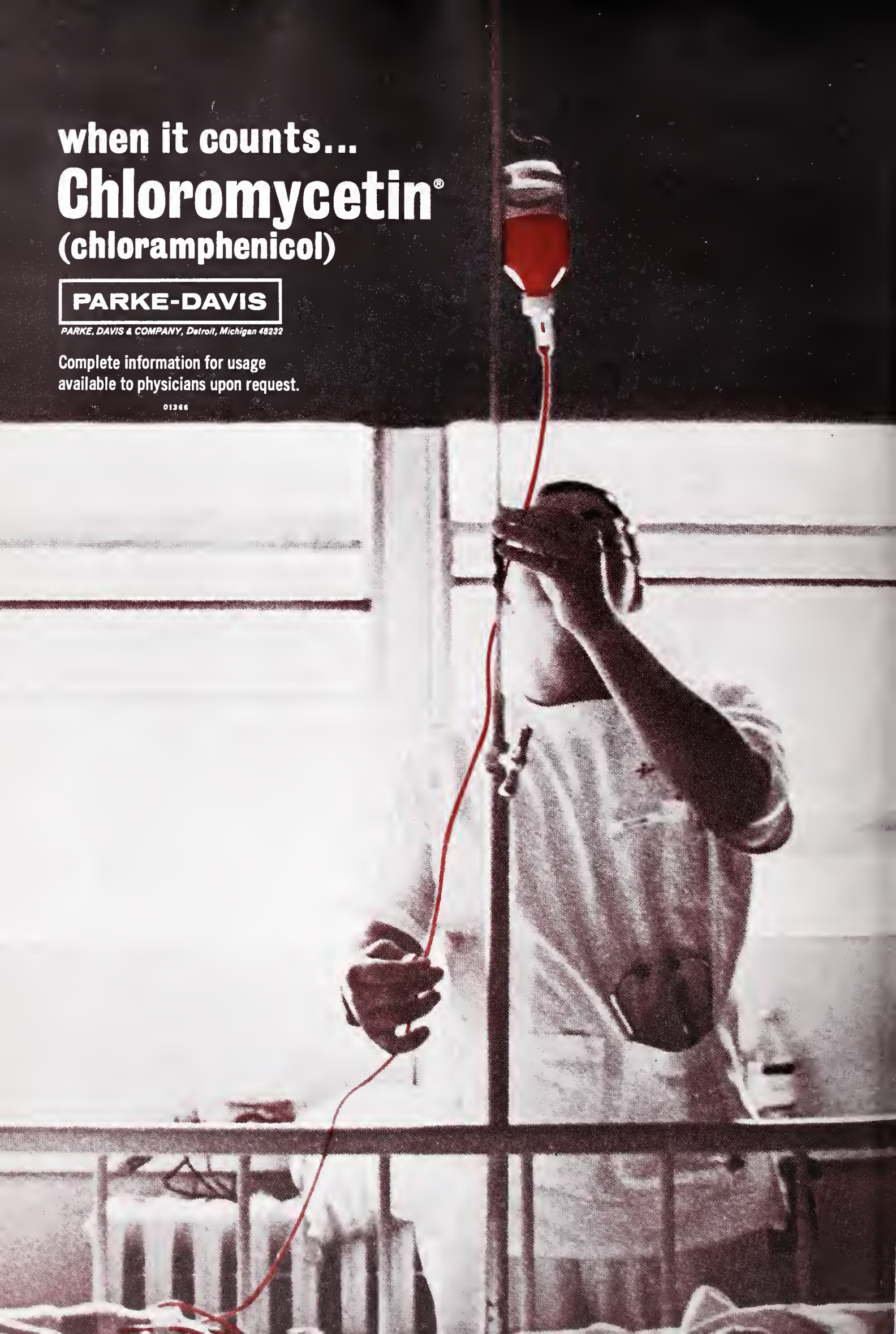
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A Rational Approach to Fluid and Electrolyte Therapy

Jeremiah G. Turcotte, M.D.*

Fluid therapy is a semiquantitative exercise in balancing the input and output of electrolytes and water. Exact determinations of electrolyte losses is neither practical or necessary, since the kidneys and lungs are capable of metabolizing quite varying amounts of minerals and water. By subdividing replacement therapy into basal requirements, abnormal losses, and losses by sequestration physicians can accurately prescribe intravenous therapy without resorting to a battery of biochemical tests or complicated mathematical formulas. This report presents the physiologic data necessary for an organized approach to fluid and electrolyte replacement.

The estimation of electrolyte requirements is markedly simplified by using a completely interchangeable unit of measure such as the milliequivalent (mEq). A milliequivalent is a weight in milligrams of an ion equal to its atomic weight if the valance is one, and half its atomic weight if the valance is two. For practical purposes it is not necessary to remember this definition, but only to appreciate that a milliequivalent represents the same quantity of ion whether it be contained in serum, food, or intravenous fluid, and no matter in what salt form it is supplied. Dieticians often refer to the number of milligrams of an ion in a particular diet. This may be converted to milliequivalents by dividing the milligrams by the atomic weight of the ion; a 1000 mg sodium diet contains 43.5 milliequivalents of sodium (1000 divided by 23). A convenient method of converting grams of sodium chloride to milliequivalents of sodium or chloride, is to remember that nine grams of sodium chloride, the content of a liter of normal saline, contains 154 milliequivalents of sodium and 154 milliequivalents of chloride ($154/9 \times \text{grams of NaCl} = \text{milliequivalents of Na or Cl}$).

There is no single normal value for electrolytes

and fluid required for a healthy adult. As long as sufficient quantity of ions and water within a broad physiologic range is supplied, the kidney, lungs and absorptive surface of the bowel will make the proper adjustments. For this reason only the rather easily remembered figures de-

TABLE I: DAILY REQUIREMENTS OF 70 KG. MAN

VOLUME OF FLUID	RANGE	USUAL
	2000-3000 cc	2500 cc
SODIUM	50-125 mEq	70 mEq
POTASSIUM	50-100 mEq	70 mEq
CHLORIDE	50-100 mEq	70 mEq
CALORIES	1500-3000	2000

scribed as "Usual Requirements" in Table I need be committed to memory.¹ A milliequivalent per kilogram of body weight of sodium, potassium and chloride is physiologically sufficient, but a diet containing only 70 mEq of sodium will taste salt poor to most patients. Large exchangeable reserves of calcium and magnesium are stored in bone and these ions need not be replaced unless parenteral therapy is prolonged beyond 3 or 4 weeks. (Table II). Bone sodium is not readily ex-

TABLE II: COMPOSITION 70 KG. MAN

Component	Plasma	Interstitial Fluid	Intra-cellular	Bone	Total mEq
WATER	5%	15%	50%	5%	50kg
Na+	10%	30%	15%	45%	4,500
K+	<1%	1%	94%	4%	3,500
Cl-	15%	45%	15%	25%	2,200
Ca++	<1%	<1%	<1%	99%	60,000
Mg++	<1%	<1%	50%	48%	2,100

changeable, however, and this ion must be replaced daily. Unless there has been prior malnutrition the lack of adequate caloric intake is tolerated well for at least two weeks by most patients. The baseline requirements of sodium, potassium, chloride, and water constitute a starting point in our planning for proper intravenous replacement. These values are appropriate for relatively healthy adults and do not apply to young children or patients with significant heart, kidney, or liver disease.

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The usual parenteral solutions utilized to manage most fluid and electrolyte problems encountered at the University of Michigan Medical Center are listed in Table III. More complex solu-

TABLE III: ELECTROLYTE CONCENTRATIONS OF COMMON PARENTERAL SOLUTIONS IN MILLIEQUIVALENTS PER HOUR

	Na	K	Cl	HCO ₃	Lac-tate	Ca	NH ₄
Normal (0.9%) Saline	154	0	154	0	0	0	
Lactated Ringers (Hartman's)	130	4	110	0	27	2.7	
Potassium Chloride		20.40	20.40				
3% Saline	517		517				
1.5% Sodium Bicarbonate	178			178			
0.9% Ammonium Chloride			167				167

tions containing many trace ions have no theoretical or practical advantage and are generally more expensive. Physicians should select a few preferred parenteral solutions, be familiar with their contents, and manage clinical problems by manipulating the proper proportions of these solutions. Hartman's or lactated Ringer's solution has an electrolyte distribution similar to normal serum and interstitial fluid electrolyte concentrations. We use this solution to replace extracellular fluid deficits. This choice of solution could be criticized because the sodium content is slightly lower, the chloride concentration slightly higher, and the quantities of potassium and calcium are too small to be useful. We continue to use Hartman's solution as our basic salt replacing solution because it is inexpensive and can be obtained in most hospitals. Normal saline is not a physiologic solution because of the great excess of chloride which biologically acts as an acid. Potassium is usually supplied in vials containing 20-40 mEq of potassium and chloride. A day's basal requirement can be provided by ordering 2000 ml Dextrose in water, and 500 cc of Hartman's solution. Twenty milliequivalent of potassium and chloride can be added to each of the 3 bottles. This provides 2500 ml of water, 65 mEq of sodium, 62 mEq of potassium, and 115 mEq of chloride. These values are well within physiologic ranges.

A common indication for intravenous therapy is for the support of patients in the postoperative period. Normal body metabolism is altered by the trauma of a surgical procedure and its associated anesthetic.^{2,3} This stress stimulates the release of aldosterone and antidiuretic hormones with consequent retention of sodium, chloride, and water. On the day of operation and first two postoperative days only about one-half the usual basal requirements of sodium and chloride

and 2000 ml of fluid are needed. Supplementary potassium may be withheld until the third postoperative day because the usual body reserve plus endogenous release of intracellular potassium from catabolism and trauma provide a sufficient quantity of this ion.

A second most important factor which modifies fluid and electrolyte requirements in the postoperative period is the obligatory sequestration of extracellular fluid into traumatized tissue. If losses are below 500 ml, such as occurs in operations of the magnitude of a inguinal herniorrhaphy, there is little physiologic consequence. In more extensive procedures or when peritonitis or bowel obstruction complicates patient care several liters may be lost from the circulation and this must be replaced if hypotension and renal failure are to be avoided. Since there is no way to measure these losses and since the physical signs of hypovolemia do not become apparent until 5% of body weight (3500 ml in a 70 kg man) is lost, these deficiencies are replaced on the basis of a clinical estimate of the losses incurred. A patient undergoing a procedure of the magnitude of a vagotomy and pyloroplasty might receive 1500 ml of Dextrose in water and 250 ml of Hartman's solution as his basal requirement on the day of operation. To this we would add 750 ml of Hartman's as our estimated loss from the circulation due to sequestration of extracellular fluid into the wound and peritoneum. This provides 2500 ml of water, 65 mEq of sodium and 55 mEq of chloride. No extra potassium is needed.

Proper replacement of abnormal losses of gastrointestinal fluid has been confused because different textbooks list widely varying values for the concentrations of electrolytes in intestinal, biliary or pancreatic secretions. These discrepancies occur because of the variation between individuals and the different conditions under which the measurements were made. Table IV list average values. Only the relationship of these secretions to normal serum electrolytes need be remem-

TABLE IV: COMPOSITION OF GASTROINTESTINAL FLUIDS AND REPLACEMENT SOLUTIONS

	Na	K	Cl	HCO ₃	Replacement
Acid Stomach	60	10	100	0	Normal Saline and K (half strength)
Low Acid Stomach	130	10	75	10	Lactated Ringers and K
Duodenum	135	10	75	50	Lactated Ringers and K
Ileum and Diarrhea	135	10	100	25	Lactated Ringers and K

bered and not the exact values themselves. The value listed for duodenum includes bile and pancreatic secretion. Note that the sodium concentration is approximately the same as in serum for secretions originating below the pyloric sphincter. In an acid stomach sodium concentration is about one-half normal serum sodium. Potassium content is almost always two to four times serum concentration in these gastrointestinal losses. In most cases intestinal, biliary, or pancreatic loss may be replaced on an equal volume basis with a neutral or slightly alkaline balanced salt solution such as lactated Ringer's. In substituting for losses from an acid stomach half the volume can be replaced with normal saline and half with Dextrose and water. Hypokalemia will be avoided by replacing 20 mEq of potassium for every liter of fluid lost from any of these sites. By adding this replacement schedule to the usual normal daily requirements, a logical plan of parenteral therapy can be followed. Our average values for gastrointestinal fluid electrolytes may differ significantly from the actual values in a specific case. If abnormal losses exceed 1000 ml daily over a three or four day period the actual electrolyte content of the fluid being lost should be measured, and serum electrolytes checked frequently so that therapy may be properly adjusted.

To this point we have been concerned with losses in patients whose serum electrolytes are relatively normal. When there is a disproportionate loss of one ion the serum electrolyte pattern can be markedly distorted and symptoms result.⁴ Hyponatremia and hypokalemia are common disturbances encountered. An estimate of a sodium deficit may be made by calculating the deficiency of sodium in the extracellular space on the basis of serum sodium and body weight of the patient. (Table II). If serum sodium has fallen to 125 mEq per liter, then 15 mEq of sodium is needed for each liter of extracellular fluid to raise the serum sodium to 140 mEq. Since extracellular fluid represents 20% of body weight a total of 210 mEq of sodium would be required in a 70 kg patient ($20\% \times 70 \text{ kg} = 14 \text{ liters ECF}$; $14 \times 15 =$

210 mEq). This method of calculation yields a conservative estimate of a sodium deficit and replacement therapy must be monitored and adjusted by frequent determinations of serum electrolytes, vital signs, urine output and repeated physical examinations. Potassium deficits are corrected by administering two to four times the usual daily requirements of this ion until serum potassium and other parameters of hypokalemia become normal. Since ninety-four percent of body potassium is interacellular, serum potassium alone is not an accurate reflection of total body potassium and there is no practical way to even roughly estimate the magnitude of a deficit of this ion; therefore an empirical method of replacing potassium is required.

SUMMARY

Fluid and electrolyte replacement is simplified by dividing a patient's requirements into 3 categories:

1. The usual basal requirements.
2. Modifications of these requirements as indicated by the specific condition and treatment.
3. Replacement of abnormal losses or sequestered fluid.

In most cases easily remembered average values may be used to quantitate these categories of replacement therapy, because the kidney and lungs are capable of making minor adjustments. By organizing an understanding of basic fluid therapy exceptional and more complicated cases can be readily recognized and the proper modification in therapy can be instituted.

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INTRAVENOUS REGIONAL ANESTHESIA

Robert B. Sweet, M.D.*

Since the publication of the paper by Holmes¹ in 1963, there has been a revival of an old idea first described by Bier² in 1908. Bier described the technique of "Venous Anesthesia" in great detail and it is essentially this method, with modifications, which Holmes reported on in 1963. Since the latter paper there have been a number of reports to follow, some favorable and some unfavorable. After a three year period of time it would seem advisable to re-evaluate the technique in light of our own experience and that which appears in the literature.

The method involves the insertion of an intravenous indwelling catheter or needle into a distal vein of the extremity to be anesthetized—preferably the needle is inserted close to the operative site. The extremity to be anesthetized is then elevated and an Esmarch bandage is wrapped about the limb to drain as much pooled blood as possible from the affected part. A double bladder tourniquet which had previously been placed about the upper part of the extremity is inflated to a pressure of approximately 25 mmHg above the systolic blood pressure of the individual being anesthetized. The more proximal bladder (closest to the trunk) is inflated first. Using the intravenous indwelling needle which had been placed earlier, one injects a previously determined dose of local anesthetic. After a short period of time—approximately 5 minutes—the more distal bladder of the Boyles tourniquet is inflated, following which the more proximal bladder is deflated. This modification allows the analgesia to take place in the area of the tourniquet to be used throughout the operative procedure so that tourniquet pain is not a problem.

Numerous local anesthetic agents have been given intravenously, but it would appear from the literature that Xylocaine has been the most popular. Varying size doses of Xylocaine have been recorded, with Dawkins³ using up to 800 mg. in one patient. However, in most instances it appears that 0.5% Xylocaine in doses up to 200 mg. total (40 cc of 0.5% solution) usually produced adequate surgical analgesia. In his study on the relationship between blood level and

toxicity of Xylocaine, Foldes et al.,⁴ reported that major toxic symptoms were first observed when the blood levels reached approximately 5.0 micrograms/ml. of Xylocaine. In 12 unanesthetized volunteers Dr. Foldes et al. compared the toxic symptoms of Procaine, Chlorprocaine, Tetracaine, and Xylocaine. It was their conclusion that the intravenous infusion of Chlorprocaine hydrochloride was tolerated the best and that Xylocaine was least well tolerated. In as much as Chlorprocaine is hydrolyzed four to five times faster by plasma cholinesterase than is Procaine, it would appear logical that this drug might be the best local anesthetic to administer intravenously since with the release of the tourniquet it would be less likely to accumulate to a toxic concentration than would Xylocaine which is non-hydrolyzable. However, in a study by Harris et al.⁵ outlining their experience using Xylocaine, Chlorprocaine, and Prilocaine, Chlorprocaine produced thrombophlebitis in 4 of 51 patients and so they concluded that this contraindicated its use by the intravenous route. Prilocaine (Citanest) would appear to be as effective as Xylocaine and the tests would indicate that it is less likely to produce central nervous system symptoms with depression or twitching. However, this drug has been asserted to be responsible for the production of methemoglobinemia⁶ and probably should not be used clinically until more information is obtained in this regard.

Kennedy et al.⁷ reported their experience with the intravenous regional analgesia technique in 77 patients. Their average dose of Xylocaine was 182.5 mg. with good operating conditions reported in 91% of the cases. They saw neurological side effects in 7 patients, two of whom became unconscious after release of the tourniquet. One patient developed cardiac arrest in asystole and was revived successfully with external cardiac massage. The dose of drug used in this last instance was 190 mg, well within the "safe dosage" range. It was their opinion that this technique was not justified due to the high incidence of neurologic and cardiovascular complications. The report by Kennedy et al. prompted an editorial in the *Journal of American Medical Association*⁸ stating "until a local anesthetic drug of proved safe-

*Chairman and Professor, Department of Anesthesiology, The University of Michigan Medical School, Ann Arbor, Michigan.

ty is available, the evidence presented by Kennedy et al. would seem to weigh the balance against general use of intravenous regional anesthesia."

Sorbie and Chachia⁹ studied the intravenous regional anesthesia technique in an attempt to determine at what neural level the anesthesia was produced. Phlebograms of the forearm were carried out under tourniquet using 45% hypaque mixed with anesthetic solution. They demonstrated that the dispersion of the anesthetic and hypaque was most rapid and complete when the hand vein was used for injection. Use of a cubital vein often resulted in unsatisfactory spread of the dye and anesthetic due to the fact that the valves of the vein prevented retrograde flow of the solution. To confirm that anesthesia was primarily the result of the drug reaching the main nerve trunks, two subjects were studied with anesthesia being produced between two tourniquets. One tourniquet was placed around the upper arm and the second around the forearm at the level of the wrist. On injection of 20 cc. of 0.5% Xylocaine into a forearm vein just proximal to the distal tourniquet both subjects developed complete anesthesia of the arm and hand which spread with a definite nerve-trunk pattern. It was their conclusion then that the anesthesia produced was the result of anesthesia of the main trunks and not due to escape of the anesthetic solution into the area of terminal nerve endings.

Since ischemia may produce anesthesia the question has been raised by some as to whether or not this is the primary cause of the analgesia rather than the action of the local anesthetic itself. Sorbie and Chacha demonstrated that ischemia did not produce complete anesthesia for 40 minutes and that the analgesia produced was first seen in the most distal part of the extremity with gradual extension up toward the tourniquet. Using coaxial needles inserted into the interosseous muscles and stimulating the ulnar nerve at the elbow it was also possible to demonstrate a difference in pattern of nerve-induction loss in the ischemic limb as compared with the limb anesthetized both with the tourniquet and a regional anesthetic agent, thus confirming that anesthesia was not due to ischemia alone.

When the tourniquet is removed at the end of the surgical procedure, the remaining local anesthetic agent is carried out of the extremity into the general circulation. It is at this time that most of the toxic symptoms can be expected to mani-

fest themselves. When present, they are the result of a high blood level of the local anesthetic previously injected. The toxic symptoms and signs present ordinarily as 1) neurological manifestations, or 2) cardiovascular manifestations. The former may be seen as either the result of depression or stimulation of the central nervous system. The patient may become drowsy, develop incoherent speech, and drift into unconsciousness. If cerebral stimulation occurs, the patient will develop twitching of the small muscles in the face and extremities and this may lead to a generalized convulsion. In the case of cardiovascular manifestations, the pulse may be noted to be of poor quality, irregular, with the development of hypotension. If these manifestations persist, cardiac arrest may occur.

Since early recognition of the toxic symptoms is essential for the successful treatment of such a patient, it is mandatory that the patient be monitored very closely through a period of 10-20 minutes after the tourniquet has been released. Treatment of the toxic reactions should be symptomatic. In the event of cardiovascular manifestations, the patient should receive oxygen by bag and mask. The intravenous use of fluids and vasopressor drugs may be undertaken as deemed necessary at the time. Should cardiac arrest occur, the patient must be continued on 100% oxygen ventilation and external cardiac massage begun. In the event of neurological manifestations the patient should be ventilated with 100% oxygen by bag and mask and either small doses of an ultra-short acting barbiturate or succinylcholine or both should be injected intravenously to control the convulsions.

Since the high blood level as a result of sudden release of the local anesthetic into the general circulation at the time of the tourniquet release is responsible for the toxic symptoms, it has been suggested by some that a minimum of 20 minutes tourniquet time expire before the tourniquet is released; the theory being that the local anesthetic injected will be dispersed throughout the tissues by this time and as a result will be more slowly released into the general circulation than would be the case if it were still located primarily in the veins of the extremity involved. However, Hargrove et al.¹⁰ have studied this problem and they conclude that there is no significant difference in the maximum blood level at the time of tourniquet release, whether one deflates the tourniquet

5 minutes or 30 minutes after the original injection. It would appear from their work that only a small portion of the regional block dose is readily released into the general circulation, with the remainder being slowly absorbed over a period of 30-40 minutes from the tissues of the arm. They likewise demonstrated that exercising the arm markedly accelerated the release of the drug into the blood and they recommended that the involved extremity be kept immobile after the tourniquet was deflated.

Another approach toward making this technique safer is the intermittent release and re-inflation of the tourniquet at the conclusion of surgery in order to extend the period of drug release into the main circulation. Merryfield and Carter¹¹ studied Xylocaine blood levels in subjects where the technique of multiple tourniquet release and re-inflation was used and compared these levels to those obtained where the tourniquet was released without further re-inflation. In this study the tourniquet was released for a period of 5-10 seconds and reinflated for 30 seconds—this sequence being repeated 3 to 5 times. By so doing the authors concluded that the intravenous regional analgesia could be made safe.

SUMMARY

The technique of intravenous regional analgesia is an old one but with a few innovations such as the use of the double bladder tourniquet and the new plastic intravenous catheters, it would appear to be an effective method in the proper hands and with attention to details. It is not such a safe technique that one need not have a competent person in attendance at all times

ready to supplement the anesthesia or to treat immediate complications. The method offers the anesthesiologist a relatively simple effective technique which should be added to his numerous approaches to anesthesia of the extremities but which probably will not totally supplant any of them.

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Perianal Cellulitis Associated With Group A Streptococci

D. P. Amren, A. S. Anderson, and L. W. Wannamaker (St. Louis Park Medical Center, 4959 Excelsior Blvd, Minneapolis) *Amer J Dis Child* 112:546-552 (Dec) 1966

Perianal cellulitis, a new clinical entity associated with group A β -hemolytic streptococci, is described. Cultures obtained from the perianal regions of ten patients presenting with erythema in this area all showed large numbers of group A

streptococci of varying serological types. Penicillin treatment was followed by prompt symptomatic relief and disappearance of physical findings. Epidemiological observations suggest a possible relationship to streptococcal pharyngitis in other members of the family, but no clinical evidence of infection of the upper respiratory tract was found in the patients with perianal disease. Recognition of this disease by physicians will not only benefit the patient by proper treatment, but may result in further elucidation of the disease process.

CLINICAL ELECTROENCEPHALOGRAPHY

Louis A. Cohen, M.D.*

WHAT CAN THE EEG DO?

Many physicians, as well as the general public, have illusions about what can be learned from an EEG. Requests coming into the laboratory very often have such statements as: "Rule out epilepsy, rule out brain tumor, rule out subdural hematoma, rule out organic brain disease." Obviously, the physician expects an EEG report to make a diagnosis, to answer a specific question as to prognosis, and to indicate therapy. This can rarely be accomplished.

The EEG, like newer techniques such as radioactive isotope brain scanning and sonoencephalography, has great value in that it is a relatively simple and painless procedure and adds more information to the data which are integrated by the physician in his assessment of a case. The EEG monitors only one band of a broad spectrum of electrical activity occurring in the brain. The scalp electrodes do not pick up normal and abnormal activity of many types which occurs in the depths at the brain substance. In spite of this limitation, valuable information about the electrical aspects of brain function can be recorded and has been shown to have an orderly relationship to other aspects of brain function.

WHAT IS NORMAL EEG?

Over the years, different investigators have come to recognize certain wave patterns in persons without demonstrable brain lesions or organic dysfunction. These patterns in the alert adult consist entirely of fairly symmetrical activity in the alpha (8 to 13 cycles per second) and beta (14 to 30 cycles per second) bands. This alpha activity predominates over the anterior portions (Figure 1). In these alert normal individuals, a series of striking changes occur as the patient becomes drowsy and goes to sleep. The slower theta (5 to 7 cps) and delta (less than 4 cps) waves ap-

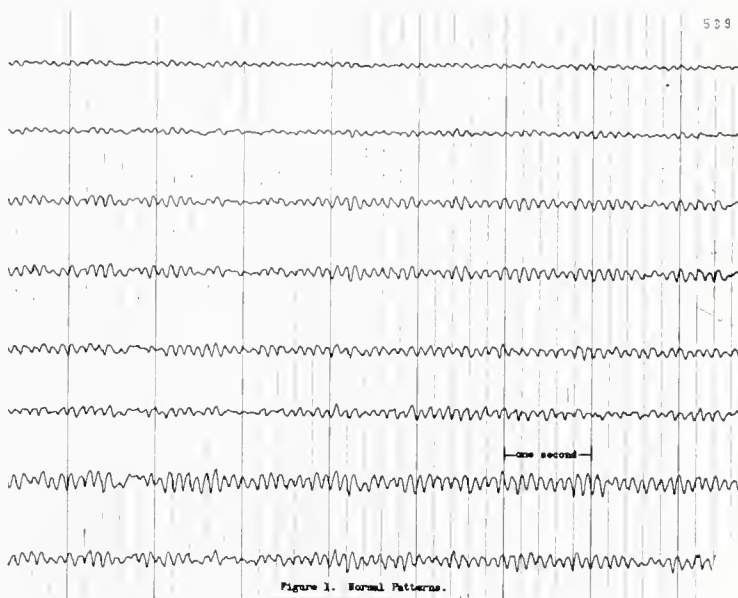


Figure 1. Normal Patterns.

pear paroxysmally and irregularly. Other normal characteristic patterns of sleep are "sleep spindles" and "vertex sharp waves" (Figure 1A).

INFANCY AND CHILDHOOD

The EEG of the infant and child is a more complex record and more difficult to analyze and interpret. Certain patterns such as slow activity,

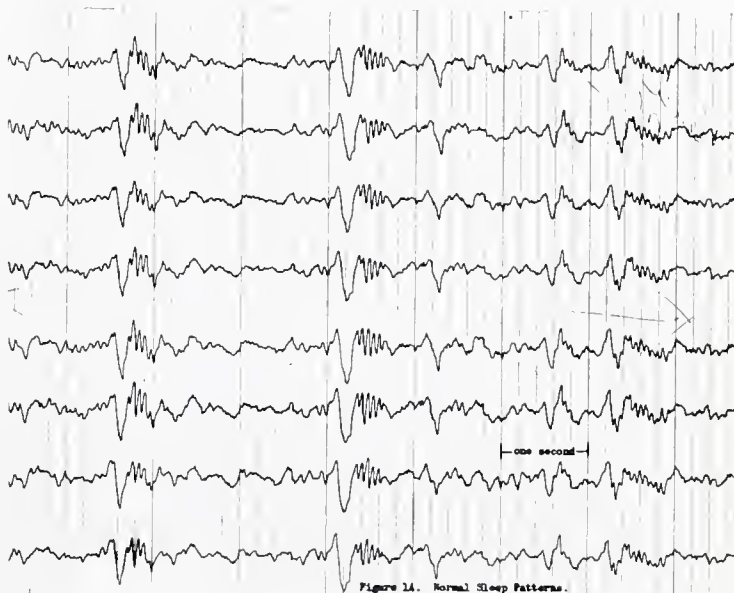


Figure 1A. Normal Sleep Patterns.

*Chief, Psychiatry and Neurology Service, Veterans Administration Hospital, Little Rock Division, 300 East Roosevelt Road, Little Rock, Arkansas.

which is pathological in adults, are normal in children. The technical problems of obtaining satisfactory records are also greater in children and infants.

ARTIFACTS

The competent electroencephalographer must be able to distinguish waves which are of cerebral origin from those which are due to a number of other factors, namely, head movements, eye movements, muscle contractions, perspiration, faulty electrode contacts, and defects within the apparatus. The age and level of consciousness of the patient are also determining factors in evaluating the brain waves.

ABNORMAL ACTIVITY

The most common evidence of cerebral dysfunction is activity which is of a lower frequency than that consistent with the patient's age and level of consciousness. These slow waves may be either generalized or localized, may be symmetrical, or asymmetrical, and the slower side is usually the abnormal one. Localized absence of brain wave activity and highly localized high frequency activity are less common types of abnormality. Spikes and polyphasic complexes containing spikes or sharp waves are abnormal at any age or level of consciousness. They occur in transient patterns which tend to stand out from the background activity in such a way as to be readily recognizable (Figure 2). It is often stated that abnormal EEG's can be found in as much as 15 percent of the so-called normal population. This might imply that either 15 percent of the population is abnormal from the EEG standpoint or

that the criteria were chosen arbitrarily rather than empirically. However, when we speak in terms of clinical electroencephalography, our criteria for abnormality must be susceptible to clinical variation. Thus, EEG's reported as abnormal in the absence of gross clinical evidence of brain dysfunction should, in almost all cases, be due to prior unrecognized or latent disease.



Figure 3. Focal Slow Patterns.

SPECIFIC USES OF THE EEG

The EEG may be used as a screening procedure in patients whose complaints are vague, ill-defined, consisting of headaches or lethargy or subtle personality changes or ill-defined weak spells, episodic vertigo, or fainting. In some of these cases, the finding of abnormalities on the EEG may help to clarify the diagnosis of a convulsive disorder. It must be emphasized that a negative or normal EEG in such a case does not rule out organic brain disease or dysfunction. The EEG is only one factor in the total evaluation of these patients. Sometimes, special procedures, such as photic stimulation or sleep recordings, will bring out the characteristic abnormalities. It is also perfectly possible that organic disease of the brain or dysfunction may be present and the EEG may not show abnormalities.

The EEG is often very helpful in contributing to localization of a mass in the brain. A lesion such as a focal meningioma, which produces only mental changes without involving the motor system or without giving neurological abnormalities as yet, may show marked slow-wave focus on the EEG. In cases of confusion where the clinical signs are masked by a mass brain disease, such as

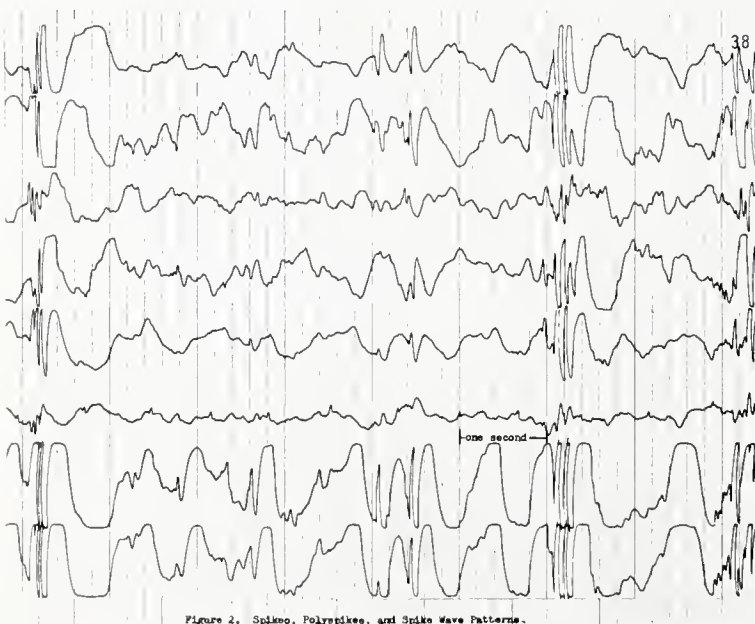


Figure 2. Spikes, Polyspikes, and Spike Wave Patterns.

hemorrhage or aneurysm, the EEG may be very helpful in lateralization of the lesion.

The EEG is not very reliable as an indicator of the nature of the focal lesion. A severe slow focus may be present in a lesion due to a brain tumor, an abscess, or an intracerebral hematoma (Figure 3).

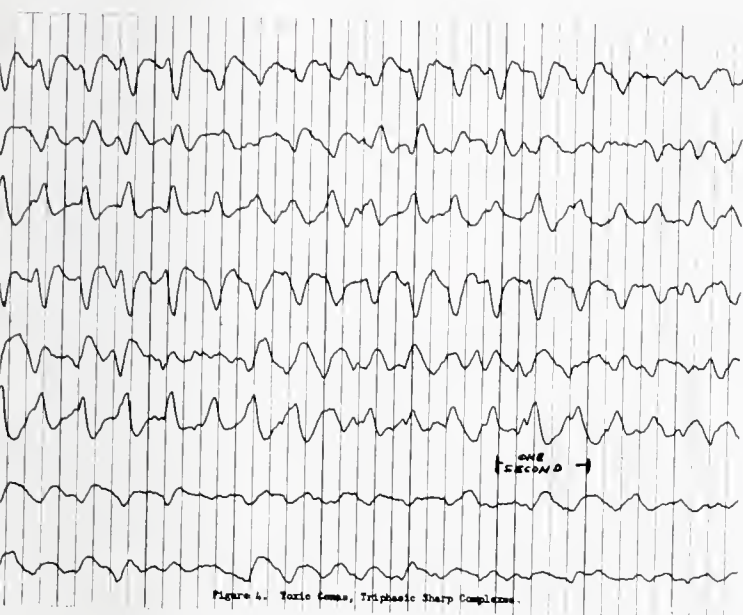


Figure 4. Toxic Coma, Triphasic Sharp Complexes.

monitor for weighing the efficacy of anti-convulsant medications. Specific drugs may be tested intravenously, and immediately the EEG changes can be noted as the tracing progresses. In metabolic disorders and toxic states, such as hepatic encephalopathy, drug intoxications, and acute head injuries, the EEG can be performed serially and the course of the illness monitored. Often, predictions as to the outcome can be made.

The efficacy of radiotherapy and/or steroid therapy in malignant brain tumors can be monitored with the EEG and correlated with the clinical status. In many clinics, the subdural hematoma is now treated medically, and this condition can be followed with serial EEG's.

The use of the EEG in treatment and clinical research is of a more technical nature and will not be covered in this article.

In recent years, the EEG has come to be used in some centers as a very helpful tool in monitoring the depth of anesthesia in the operating room. An orderly progression of changes has been found which correlates to the depth of anesthesia. When diffuse flattening appears in the tracing, it is often a warning signal that only a very brief period remains during which circulation to the brain must be restored or else permanent damage or even death may result.

This appearance of a flat EEG without demonstration of brain waves has been proposed for use as one criterion in determining when death has occurred in a patient who is being maintained on artificial respiration and/or external cardiac pacemaker stimulation.

Over the years, many attempts have been made to use the EEG in psychiatric practices and in psychiatric research. Although many papers have been presented correlating EEG abnormalities with various psychiatric diagnoses and although statistical methods have been invoked, there is no agreement on both the psychiatric and the EEG diagnoses.

Various levels of sleep can be identified from EEG patterns, and there is a whole new field of research in the physiology of sleep and dreaming which is now in a very active process of being reported.

SUMMARY

Electroencephalography is a valuable laboratory method of gaining additional information about the functions or dysfunctions of a brain which can be correlated with other procedures.

The EEG is of great value in determining the type of convulsive disorder which may be present. The clinical seizure phenomena are the same whether the focus is cortical or subcortical, and only the EEG can distinguish the difference here.

Patients in coma from hepatic insufficiency or severe uremia show a fairly characteristic pattern of repetitive, bisynchronous, triphasic, sharp complexes (Figure 4). Patients who are in coma from transverse lesions of the lower brainstem may show perfectly normal EEG's.

The EEG is very valuable in differentiating some dreamy states or confusional states. Without a previous history of epilepsy, a patient in a state of mental dullness, restlessness, or confusion may have an EEG accomplished which shows typical seizure patterns. Many children with atypical behavior problems, without the history of a frank convulsive disorder, will show a grossly abnormal EEG of a convulsive type and will have clinical improvement from anti-convulsant medication. Many retarded children may have focal EEG changes indicating the presence of an underlying brain cyst or vascular malformation or microcephaly, which could be proven on further neurologic diagnostic studies.

In many patients, the EEG can be used as a



“George wants to know if it’s okay to take his cold medicine now, Doctor, instead of seven o’clock?”

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There is a high correlation between these *in vitro* findings and clinical results. Of 610 patients treated with Prostaphlin (sodium oxacillin), 89.8% were reported cured or improved, including those with staph infections resistant to penicillin G.² And since resistance does not appear to develop *in vivo*, therapy with oxacillin can be extended when necessary.

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Besides being staph-specific and rapidly absorbed—Prostaphlin (sodium oxacillin) has established an outstanding record of safety during five years of widespread clinical use. Continuous high blood levels of oxacillin have not produced toxic effects on kidney function, assuring a significant margin of safety. However, as with all penicillins, the possibility of allergic response should be considered.

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Prostaphlin (sodium oxacillin) is available in three flexible dosage forms to suit the age of the patient and severity of infection—an oral solution for pediatric use, capsules, and multi-dose vials for injection.

PRESCRIBING INFORMATION: For complete information, consult Official Package Circular. **Indications:** Infections caused by Staphylococci, particularly those due to penicillin G-resistant Staphylococci. **Contraindications:** A history of severe allergic reactions to penicillin. **Precautions:** Typical penicillin-allergic reactions may occur. Safety for use in pregnancy and premature infants is not established. Because of limited experience, use cautiously and evaluate organ system function frequently in neonates. Mycotic or bacterial superinfections may occur. Assess renal, hematopoietic and hepatic function intermittently during long-term therapy. **Adverse Reactions:** Skin rashes, pruritus, urticaria, eosinophilia, nausea, vomiting, diarrhea, fever and occasional anaphylaxis. Rare cases of reversible hepatocellular dysfunction have occurred. Moderate SGOT elevations have been noted. Thrombophlebitis has occurred occasionally during intravenous therapy and leukopenia was noted in two cases. **Usual Oral Dosage:** Adults: 500 mg. q. 4 or q. 6 h. Children: 50 mg./Kg./day. **Usual Parenteral Dosage:** Adults: 250-500 mg. q. 4 or q. 6 h. Children: 50 mg./Kg./day. Treat beta-hemolytic streptococcal infections for at least 10 days. Give oral drug 1 to 2 hours before meals. **Supplied:** Capsules—250 and 500 mg. in bottles of 48. Injectable—250 mg., 500 mg., and 1 Gm. dry filled vial for I.M./I.V. use. For Oral Solution—100 ml. bottle, 250 mg./5 ml. when reconstituted.

A.H.F.S. CATEGORY 8:12.16

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In some cases, it is the only method which gives reliable, permanent, valuable information to be used as the basis for a clinical diagnosis. The signal upon which the EEG tracing is based is a very complex and dynamic process as opposed to the repetitive stereotyped EKG patterns. There are many elements of variable but potentially great significance in the equipment, the environment, the patient's attitude, the level of consciousness, metabolism, and state of health; and, most important, the clinical science of EEG interpretation becomes an art. Although specific patterns

can usually be recognized scientifically, the non-verbalized Gestalt observations of the encephalographer play a very important part. This complexity, therefore, makes for a variety of diagnostic opinions which can occur among trained electroencephalographers in the so-called borderline cases. However, in the hands of a well-trained, experienced, conservative worker, such ambiguous situations should be rare. Electroencephalography is not only reliable but a very valuable and clinically useful method of laboratory investigation.



Erythrocyte Destruction Induced by Methylcellulose

E. Machado, B. B. Lozzio, and V. Lew (Univ. of Tennessee Memorial Research Center, Knoxville) *Arch Path* 82:590-595 (Dec) 1966

The short-term administration of methylcellulose (MC) to rats produced hepatosplenomegaly, anemia, and an increase to the bile bilirubin output. Splenectomy returned the hemoglobin concentration to the normal range but did not modify the bilirubin excretion. Normal homologous erythrocytes had a slight reduction of the mean life span in MC-treated rats. The erythrocytes from MC-treated rats had a normal survival time when injected into normal animals, but the same cells had a marked shortening of their life span when injected into MC-treated rats with or without a spleen. These observations and the organ uptake of radioactive chromium 51 indicated that during hyperfunction of the reticuloendothelial system (RES) produced by MC, the erythrocytes were removed from the circulation mainly by the spleen. Other mechanisms making the erythrocytes more susceptible to phagocytosis by RES are discussed, and it is postulated that there may be many such mechanisms.

Syndrome of Inappropriate Vasopressin Secretion

G. V. Clift et al *Arch Intern Med* 118:453-460 (Nov) 1966

A 56-year-old man with the syndrome of inappropriate secretion of antidiuretic hormone, apparently resulting from oat-cell carcinoma of the lung, was studied. Serum sodium (Na) concentration correlated with body weight, ($r = -.97$, $p < .001$) which was altered by changing fluid intake. Hyponatremia resulted partly from the dilutional effect of water retention and partly from the mild natriuresis which was attributed to an increased glomerular filtration rate—since Na excretion could be correlated with filtered Na—in the presence of persistently reduced aldosterone secretion. Aldosterone excretion remained low, even when natriuresis and hyponatremia were overcome by fluid restrictions, presumably because of persistent plasma volume expansion rather than intrinsic adrenocortical insufficiency, since angiotensin increased aldosterone excretion normally. The inhibitory effect of plasma volume expansion, therefore, overrides any stimulatory effect of hyponatremia on aldosterone production in man.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., *Professor and Chairman*
STACY R. STEPHENS, M.D., *EDITOR*

THE POSTERIOR COLPOTOMY*

George R. Cole, Jr., M.D.

In many instances bimanual pelvic examination does not provide enough information to permit accurate evaluation of pelvic symptoms, particularly when an abnormal condition produces pain or local tenderness. In some cases, examination of the anesthetized patient will clarify the problem, but in others it is essential that other methods be utilized.

The posterior colpotomy incision has been shown by wide experience to be a simple and safe procedure for the diagnosis of pelvic pathology.²⁻⁵ With the cul-de-sac open, not only can a more accurate appraisal of the pelvic organs be made, but in many instances definitive surgical procedures can be completed.

It is hoped that this paper will encourage more general acceptance of this valuable surgical procedure.

HISTORY

Surgeons were aware of the merit of posterior colpotomy during the 19th century. Howard Kelly, who in many ways influenced the progress of gynecology in this century, reported in 1896⁷ ten ectopic pregnancies that were managed by the vaginal route. In subsequent years, several other surgeons, notably Babcock,¹⁰ have reported their experience with the diagnosis and treatment of a variety of lesions. However, in reviewing the literature, one discovers that, following the advent of aseptic surgery, posterior colpotomy has been used by relatively few surgeons and actually has been condemned by many. Critics argue that the exposure afforded is inadequate, the operation technically difficult, and the approach

fraught with potential sepsis.

Others state that operations performed via this incision constitute "surgical gymnastics" to which Cherny rebuts, "in skilled hands this can be a simple, effective procedure with no special calisthenics involved above the normal dexterity demanded of any surgical procedure."

The indications for posterior colpotomy are not clear-cut but depend on the judgment and experience of the surgeon. Proficiency with the technique obviously broadens the indications. Simply stated, colpotomy is indicated whenever direct examination of the internal organs of reproduction is deemed advisable. By means of posterior colpotomy, diagnosis is possible by palpation and visualization.

Having made the diagnosis, the decision can then be made as to whether definitive surgery can be accomplished conveniently by this approach or whether laparotomy will be necessary. Exploratory laparotomy for suspected pelvic conditions can be supplanted in many instances by the vaginal approach.

Culdocentesis and culdoscopy often will provide the diagnostic information desired, but in addition posterior colpotomy will often allow the necessary corrective surgery to be completed through the same incision. Culdoscopy and colpotomy are complementary procedures, both of great value, and should not be considered as competitive.

The contraindications to this operation are much more precise. In the presence of an acute hemoperitoneum with frank or impending shock, valuable time may be lost in attempting the vagi-

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nal approach with serious consequences.

Generally speaking, it is difficult to deliver most pelvic masses greater than six to seven centimeters through a colpotomy incision without rupture or decompression; hence this approach is avoided. A fixed retroversion or immobile cul-de-sac masses that persist under a relaxing anesthetic are definite contraindications. Most surgeons avoid colpotomies on patients with contracted pelvis, particularly those with a narrow pubic arch since the available operating room is markedly diminished.

Nulliparity and previous abdominal or vaginal surgery rarely contraindicate this approach unless the cul-de-sac is obliterated.

Descriptions of the technique of posterior colpotomy are available in most standard texts⁸ and a number of published papers.²⁻⁴

MATERIALS

The material presented in this study was taken from the records of the University of Arkansas Medical Center from January, 1960 through August, 1966 inclusive. During this six year, eight month period, 107 posterior colpotomies were performed. Of these, 45 were done to drain pelvic abscesses and are excluded from the study. Thus, 62 posterior colpotomies done as diagnostic procedures are reviewed and analyzed.

TABLE I
AGE DISTRIBUTION

Age in years	Number of cases
Under 20	9
21-30	33
31-40	16
41-50	3
Over 50	1
Total	62

RESULTS AND DISCUSSION

Ages ranged from 17 to 54 years. Ninety-four percent of the colpotomies were performed on patients from the ages of 17 to 40, the childbearing years. This fact is not surprising since more than one-third were performed because of suspected ectopic pregnancy. Twelve of the patients in the series (or 19%) were nullipara.

PRE-OPERATIVE SIGNS AND SYMPTOMS—

Table II lists the presenting complaints. Thirty-two patients (51%) complained of pelvic pain. Of these 23 had an associated pelvic mass. Irregular menses was the presenting complaint in

TABLE II
PRE-OPERATIVE SIGNS AND SYMPTOMS

Pain	32
Mass	4
Irregular menses	18
Infertility	6
Dysmenorrhea	2

18 patients. Of these, nine patients had a pelvic mass and seven had associated pelvic pain. Four patients were found on routine examination to have asymptomatic pelvic masses. Therefore, a total of 36 patients had a pelvic mass.

TABLE III
CORRELATION OF PRE- AND POSTCOLPOTOMY DIAGNOSIS

Preoperative Diagnosis	No.	Postoperative Diagnosis	No.
Ectopic	22	Ectopic	14
		Ovarian cyst	3
		Threatened ab	3
		PID	1
		Endometriosis	1
Ovarian cyst or neoplasm	16	Ovarian cyst or neoplasm	11
		PID	2
		Ectopic	1
		Adhesion	1
		Dysfunctional bleeding	1
PID (Chronic)	13	PID	6
		Ectopic	5
		Cystitis	1
		Stein-Leventhal	1
Miscellaneous	11		
Stein-Leventhal	3	same	3
Broad ligament hematoma	1	same	1
Pedunculated myoma	1	same	1
Infertility	2	same	2
Incomplete ab	2	Incomplete ab	1
		Chronic PID	1
Endometriosis	2	Endometriosis	1
		Normal pelvis	1

CORRELATION OF PRE- AND POSTCOLPOTOMY DIAGNOSIS—

The major indications for posterior colpotomy in this series were suspected ectopic pregnancies, ovarian cysts, and adnexal masses and pain suggestive of chronic pelvic inflammatory disease (Table III).

In 22 patients, suspected ectopic pregnancy was the preoperative diagnosis. This was confirmed in 14 cases. Seven patients with suspected ectopic pregnancy were found to have ovarian cysts, threatened abortion or pelvic inflammatory disease. Any one of these disorders may produce a clinical picture identical to ectopic pregnancy

and must be considered in its differential diagnosis.

The preoperative diagnosis of ovarian cyst was made 16 times and was confirmed in 11 patients. Chronic pelvic inflammatory disease with adnexal masses and pain was the preoperative diagnosis in 13 instances. Six patients were found to have chronic pelvic inflammatory disease while in five cases an ectopic pregnancy was noted. Eleven cases did not fall into the above categories and are listed under miscellaneous.

The overall accuracy in preoperative diagnosis was 64 percent. This is significantly higher than the 41 percent correct preoperative diagnosis found in the only comparable series in the literature.⁹

TABLE IV
DEFINITIVE SURGICAL PROCEDURES
PERFORMED THROUGH A
COLPOTOMY INCISION

	No.
Salpingectomy	3
Ovarian cystectomy	8
Oophorectomy	1
Wedge resection, bilateral	4
Suture of ovary	2
TOTAL	18

DEFINITIVE OPERATIVE PROCEDURES
PERFORMED THROUGH POSTERIOR
COLPOTOMY—

In this study of 62 cases, 18 definitive surgical procedures were safely performed and are listed in Table IV.

Twenty-nine percent of our patients were spared laparotomy by successful surgical therapy performed through a colpotomy incision.

Seven additional patients were spared a laparotomy because of negative findings at diagnostic colpotomy. These patients were all admitted with a diagnosis of suspected ectopic pregnancy and presented a history of pelvic pain associated with abnormal bleeding, an interval of amenorrhea, and/or an adnexal mass. The diagnosis of ectopic pregnancy is often difficult, particularly if unruptured; and the risk is great if it is not diagnosed early and treated promptly.¹ In most cases of ectopic pregnancy, the diagnosis is not obvious, but rather is one of suspicion; and the only way to confirm or rule it out is to visualize the pelvic viscera. By using the posterior colpotomy early in these suspicious cases, a positive

diagnosis can be made without delay and unnecessary laparotomies prevented.⁴

TABLE V
PATHOLOGY NECESSITATING
LAPAROTOMY

	No.
Adhesions with chronic ectopic pregnancy	17
Adhesions with ovarian neoplasm	2
Large ovarian cyst	1
TOTAL	20

Twenty patients required laparotomy following colpotomy. Indications for laparotomy are listed in Table V. In 19 patients adhesions prevented delivery of adnexa through the colpotomy incision. Seventeen of these cases represented chronic ectopic pregnancies and in two cases the adhesions were associated with an ovarian neoplasm. One mobile ovarian cyst was too large to be delivered through the incision. In three patients with extensive pelvic inflammatory disease diagnosed at colpotomy laparotomy and hysterectomy were elected.

Colpotomy followed by laparotomy should not be considered a failure. This merely represents a judgment that the pathology discovered may best be managed from above with little additional morbidity.

TABLE VI
COMPLICATIONS AND MORBIDITY

	No.
Rectal perforation (one developed pelvic abscess)	3
Pelvic abscess	2
Infected hematoma of incision	1
Pelvic cellulitis	1
TOTAL	7

The seven significant complications in this series are listed in Table VI. The three rectal perforations were repaired surgically and recovery was uneventful in two patients. The third developed a pelvic abscess which required a second colpotomy. Two other cases of pelvic abscess developed after posterior colpotomy and these also required drainage. The one patient with pelvic cellulitis required antibiotics and remained in the hospital for seven days. There were no instances of postoperative hemorrhage. No attempts at colpotomy were unsuccessful.

LENGTH OF HOSPITALIZATION—

Thirty-six patients underwent only colpotomy. The shortest hospitalization was two days and the longest was 24 days. Eighty-three percent of the patients were hospitalized for six days or less. Sixty-one percent were hospitalized for four days or less. Only three patients required hospitalization beyond ten days and all three had pelvic abscesses requiring secondary drainage.

Of the patients in which laparotomy was necessary, the shortest hospital stay was five days and the longest was eight days. Twenty-two (87%) of the twenty-six patients were hospitalized seven or eight days.

SUMMARY AND CONCLUSIONS

A review of 62 cases of posterior colpotomy was made. The most common preoperative symptoms were pain and irregular menses. Thirty-six patients had pelvic masses. The preoperative diagnosis was confirmed in 40 cases. The overall accuracy in the preoperative diagnosis was 62 percent. In this series the following procedures were successfully performed: salpingectomy, ovarian cystectomies, oophorectomy, ovarian wedge resection and most important—palpation and visualization of adnexa.

While posterior colpotomy is frequently of great value, certain disadvantages must be recognized. The most common postoperative complication was pelvic infection. In the vast majority of cases the hospital stay was shortened when a posterior colpotomy could be utilized.

Posterior colpotomy has proved to be a safe and effective diagnostic aid for the gynecologist. In many instances it provides an adequate approach to the surgical therapy of adnexal conditions. As gynecologists become more proficient in performing posterior colpotomy operations and more confidence is gained in its efficiency, many patients will be spared the need for exploratory laparotomy.

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Pulmonary Diffusing Capacity Among Japanese With Clinical Features Similar to Tokyo-Yokohama (T-Y) Asthma

T. Miyamoto et al (Medical School of Tokyo University, Tokyo) *Amer Rev Resp Dis* 94:734-740 (Nov) 1966

A study of 237 Japanese asthmatic patients uncovered 8 patients presenting with the history and clinical pictures similar to T-Y asthma. To investigate emphysematous changes in the lung of Japanese T-Y asthma-like patients, pulmonary diffusing capacity for carbon monoxide was measured in ordinary asthmatic patients, patients with chronic emphysema, and in normal subjects. Dif-

fusing capacity in both T-Y asthma-like patients and ordinary asthmatic patients was in the range of normal subjects, while that in chronic emphysema was significantly low. Simultaneous measurement of percentage timed vital capacity and of residual volume/total lung volume ratio presented no particular difference between T-Y asthma and ordinary asthma. In T-Y asthma-like patients and in ordinary asthmatic patients there were neither significant destructive changes as seen in the lung of chronic obstructive emphysema nor alveolo-capillary block; eight T-Y asthma-like patients were not compatible with typical T-Y asthma in the original definition.

New and Encouraging Information on Cancer of the Lung

John Satterfield, M.D.*

By 1958 six large series of patients with cancer of the lung had been published establishing the five year survival rate at eight to nine per cent. This low survival rate was disappointing because the tumor should be the most easily detected visceral cancer (by chest X-ray) and because it is one of the most frequently occurring cancers in adults.

The main reason that bronchial cancer is so lethal is that about seventy per cent of patients have tumors which are not resectable when they are first seen. When resection is done the patient actually has a *twenty-five* per cent chance of cure. Clearly, one way that survival from cancer of the lung can be improved is to increase the number of patients who have resections. A second way that survival can be improved is by diminishing operative mortality.

Accordingly, lesions with high prospects of being resectable deserve the highest order of aggressiveness. The solitary pulmonary nodule is such a lesion because it is almost always removable

TABLE I
280 PRIMARY CARCINOMAS APPEARING AS
SOLITARY PULMONARY NODULES

Ages	Carcinomas	Total Patients in Age Group	Percentage Carcinomas in Age Group
25-29	1	39	(2)
30-34	2	53	(4)
35-39	13	100	(13)
40-44	18	120	(15)
45-49	27	105	(26)
50-59	56	135	(41)
60-69	127	253	(50)
70-79	31	44	(70)
80-83	5	5	(100)

*From table 29, page 14 of Steele, John, THE SOLITARY PULMONARY NODULE, 6th Ed., 1964. Courtesy of Charles C. Thomas, Publisher, Springfield, Illinois."

when it is malignant. Indecision when faced with the problem of a solitary pulmonary lesion comes from the fact that not all such lesions are cancer. Recent data sheds light on the probabilities of a lesion being a primary pulmonary cancer. Table one shows the remarkable relationship between age and incidence of cancer in these lesions. Mid-

TABLE II
TYPES OF LESIONS IN 911 RESECTED
SOLITARY PULMONARY NODULES

Malignant Tumors		327
Primary	300	
Metastatic	27	
Hamartomas		69
Granulomas		510
Miscellaneous lesions (Cysts, pneumonic lesions, etc.)		26
Pleural or chest wall lesions		9

"Condensed from tables 3 and 4, page 6 of Steele, John, THE SOLITARY PULMONARY NODULE, 6th Ed., 1964. Courtesy of Charles C. Thomas, Publisher, Springfield, Illinois."

dle aged and elderly people have a high risk of cancer. Table two shows that the lesion is almost always a primary lung lesion when there has been no other cancer in the patient, and when there are no signs or symptoms of other cancers present. Hence, a careful history and physical examination eliminate the possibility of the lesion being metastatic with a ninety-seven per cent certainty. Finally, when such cancerous lesions are removed, the patient has a greatly improved chance for cure. All studies of this lesion show a much higher survival rate than the original studies of 1957 and 1958. Steele's series is the largest, and his four year survival averaged 38 per cent for all lesions and 53 per cent for small lesions. O'Connor reported a 93 per cent five year survival rate, but his series was much smaller than Steele's.

The solitary pulmonary lesion is defined as an undiagnosed, discrete mass seen on the plain chest X-ray of a patient with no other masses in the thorax. The lesion may have satellite nodules, may contain calcium, may be cavitory. It may be irregularly shaped, and its borders may be dim or sharp.

The physician faced with a patient with a solitary lesion should have a rational and systematic approach to the problem because every such lesion need not be removed. The reason for resecting it is that it may be a cancer. If the patient can be placed in one of the categories that eliminates the possibility of cancer he can be spared further expense and worry. The steps to

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be followed in selecting patients for operation are as follows.

Old chest X-rays are sought. If the lesion in question is present and unchanged two or three years before, or if its evolution can be traced from a documented infection then the search is ended. The principle of not operating upon a stable lesion is applied retrospectively; no new lesion should be watched to see if it will grow. If old X-rays are unavailable the patient should be hospitalized for further study.

Laminography is quite helpful if calcification or cavitation is suspected. So far, no cancer has been found in lesions which are completely or concentrically calcified. The finding of such calcification ends the search. Cavitory lesions caused by pathogenic organisms usually spill enough of the infecting organisms into the sputum to be detected. If the sputum is bacteriologically negative the possibility rises that a cavitory lesion is a cancer.

Laboratory study of the sputum is the next step when further study is indicated. Tubercle bacilli, fungi, and cancer cells are sought in the sputum. The finding of pathogenic organisms is strong evidence against cancer. However, cancer can co-exist with such infections. The final decision about lesions occurring with bacteriologically positive sputum is deferred until the influence of specific therapy is observed. Such helpful sputum findings are infrequent with solitary pulmonary nodules.

Bronchoscopy, the next step, is important for two reasons although it is not universally practiced. First, material for laboratory study can be obtained from the specifically involved pulmonary lobe or segment; this is important if the patient cannot produce sputum. Secondly, bronchoscopy establishes resectability from the standpoint of endobronchial disease.

Finally, if the lesion remains undiagnosed and the patient is otherwise suitable for thoracotomy the lesion should be removed. Occasionally, inspection of the lesion at thoracotomy proves it to be benign, in which circumstance a local excision is acceptable. Deeply located lesions and lesions of unknown nature after inspection are to be regarded as cancer and treated as cancer. A cancer operation should be done.

In summary, the newly discovered solitary pulmonary lesion in a middle aged or elderly adult has a great chance of being a primary lung cancer. This lesion should be aggressively treated because the patient with such a lesion has a good chance of being cured of an ordinarily lethal disease. This is the only way the practicing physician today can improve survival rates from cancer of the lung.

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Unilateral Renal Disease and Hypertension

A. R. Sharpe, J. H. Magee, and D. W. Richardson (Medical College of Virginia, Richmond) *Arch Intern Med* 118:546-552 (Dec) 1966

Using the sodium iodohippurate I^{131} renogram, 324 hypertensive patients were screened for unilateral renal disease. Renal lesions were found in 7%. Following surgery, 66% of the patients

were improved. The renogram proved to be the most reliable screening test in this series and the most accurate in predicting final surgical results. All cases with a pressure gradient of 40 mm or more obtained surgical relief and demonstrated a change in the $T_{\frac{1}{2}}$ of the renogram. All hypertensive patients should be screened initially, using the sodium iodohippurate I^{131} renogram.

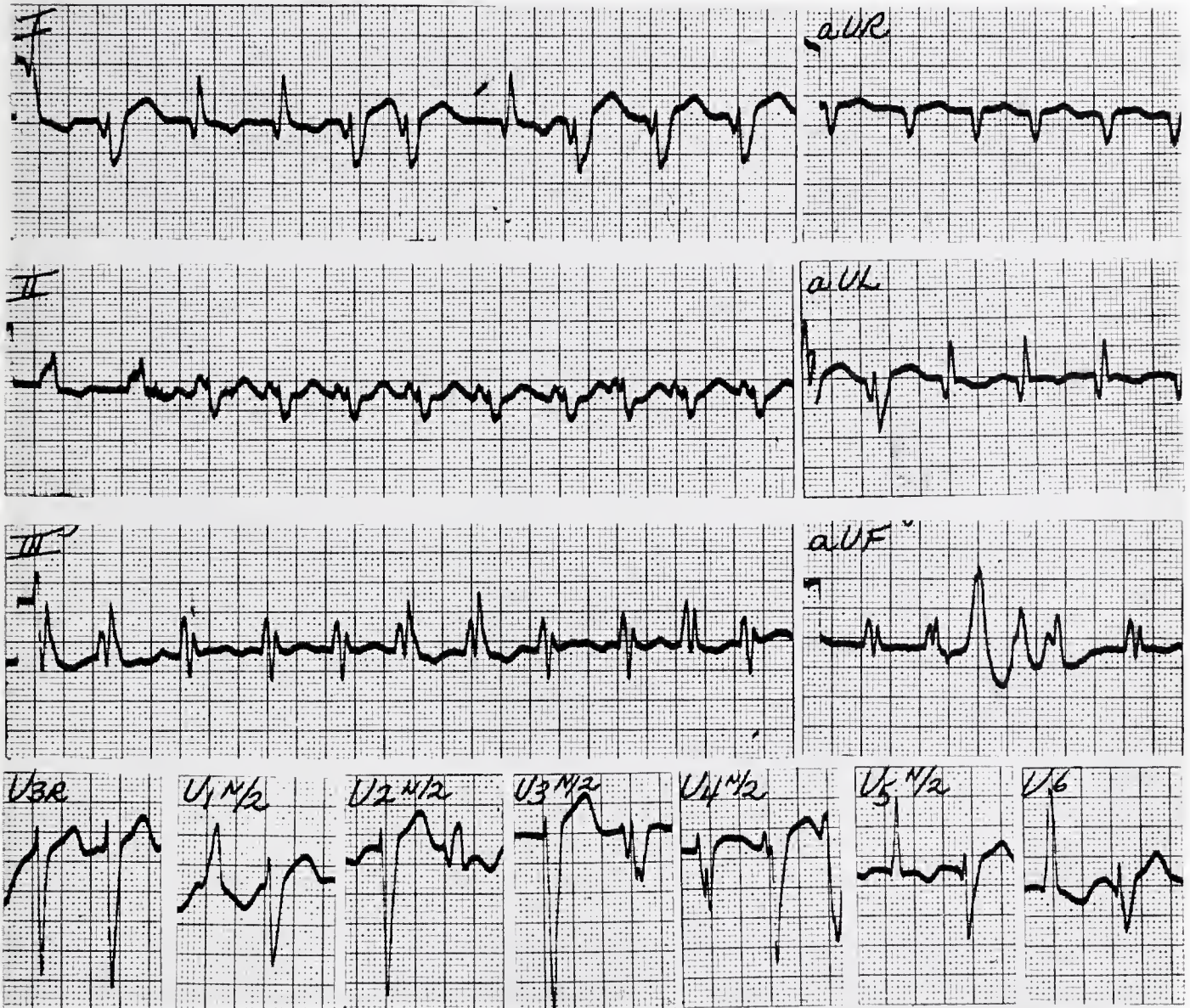


ELECTROCARDIOGRAM

OF THE MONTH

AGE: 50 SEX: M BUILD: Stocky BLOOD PRESSURE: 200/130
CARDIAC DIAGNOSIS: Hypertensive Cardiovascular Disease
OTHER DIAGNOSES: Chronic Renal Disease
MEDICATION: Digitalis .25 mg/bid, Diuril, KCL, Apresoline
HISTORY: Patient Expired

ANSWER ON PAGE 383

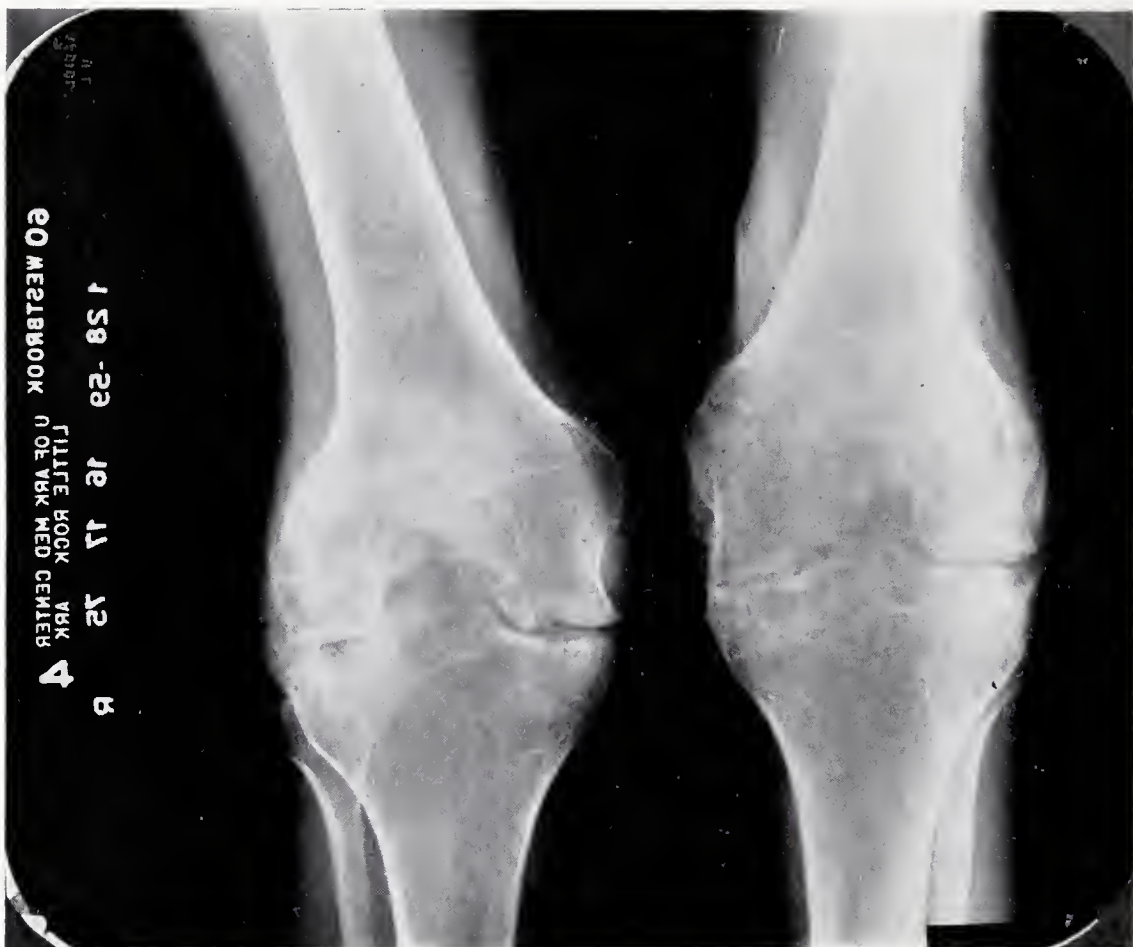


The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

ANSWER ON PAGE 383



HISTORY: Twenty-two year old white male with periodic episodes of bleeding into knee and elbow joints.



PUBLIC HEALTH AT A GLANCE

Packaged Disaster Hospital Program

The Packaged Disaster Hospital Program is administered by the Arkansas State Department of Health. There are nineteen of these hospitals pre-positioned in the State and distributed as indicated by the spot map. Significant progress has been made in the past two years toward bringing each of these packaged disaster hospitals up to a state of readiness.

Any massive disaster almost inevitably creates an acute shortage of hospital space and medical supplies needed to care for the sudden influx of disaster casualties. To help prepare communities to meet their emergency needs, the Federal Government has stockpiled medical supplies and equipment. Much of this material is contained in the Packaged Disaster Hospital (PDH) units which are assembled by the U.S. Public Health Service and loaned to States. The Arkansas State Department of Health carefully selected storage sites in the communities for affiliation, where possible, with a local hospital.

A Packaged Disaster Hospital consists of hos-

pital supplies, equipment, and pharmaceuticals packed for long-term storage. In a disaster, the PDH can be used to expand the hospital to which assigned, or it can be set up as a separate 200-bed hospital in an appropriate pre-selected building and operated under the direction of its assigned hospital personnel drawn from that hospital, from community volunteers, or both.

PDH components permit setting up the following hospital sections: receiving and sorting, operating rooms, wards, central sterile supply, pharmacy, laboratory, X-ray, and general stores. Generators and a water tank and pump are provided in case public utilities are disrupted.

With the pre-disaster responsibility for the safe storage of the PDH comes the responsibility for making a definite plan showing how the PDH is to be utilized in a disaster. Much of this pre-disaster planning will, of necessity, be done by the chief of staff—administrative level—in consultation with those specialists assigned to head the various PDH sections, such as nurses, pharmacists, X-ray and laboratory technicians, the building engineer, etc.

If the PDH is to be kept in operation for a number of weeks, arrangements for resupply must be made before the expendable supplies furnished with the PDH are exhausted. A disaster severe enough to necessitate prolonged PDH operation undoubtedly will have disrupted transportation and communications facilities and local suppliers consequently may find themselves unable to meet the needs of the hospitals in their area. Procurement under these circumstances may well be one of the most pressing problems to face the PDH administrator. As part of the pre-disaster preparation, someone, such as a designated procurement officer, should have become familiar with Federal back-up supply sources, Civil Defense supply procedures, and all local sources of supply.

PRE-POSITIONED PACKAGED DISASTER HOSPITALS



*Applications made for Packaged Disaster Hospitals.

There is a critical need for familiarization, training, and guidance of the PDH general stores section personnel who will work in the disaster situation. These individuals will be responsible for inventorying and distributing the supplies which come with the PDH and also those subsequently procured by the PDH administrator.

Plans should be prepared for operating the PDH in a separate building for an extended period, as might be the case in a nuclear attack. This same plan would greatly facilitate using the PDH for briefer periods following a disaster such as a flood, hurricane, earthquake, fire, or major accident when the parent hospital and other local hospitals are temporarily overloaded or damaged so that they cannot provide the usual patient services.

Recommendations are now being given serious consideration to include the placement in all community hospitals of a 30-day supply of critical medical items necessary for disaster care and the affiliation, where possible, of all PDH's with

existing community hospitals. This new concept would allow for rotation of the Federal medical supplies, thus lessening the likelihood of their deterioration because of age.

A number of exercises and demonstrations have been carried out by the Arkansas State Department of Health during the past three years in an effort to orient medical personnel in the special nature and use of the PDH's in disaster situations. Although much has been accomplished in the last few years in the area of disaster preparedness in Arkansas, a great task remains before a satisfactory state of readiness can be attained. There is an urgent need for greater cooperation between all the health professions in the exchange of ideas, organizing for disaster situations, preparing and staffing suitable plans for large natural and man-made disasters. It is the opinion of many individuals that all the health professions must direct their energies and knowledge in a coordinated effort if disaster preparedness is to be fully effective.



Effect of Tolbutamide on "Free" and "Complexed" Serum Insulin

K. Gundersen (The Boston Dispensary, 185 Harrison Ave, Boston) *Diabetes* 15:663-667 (Sept) 1966

The effect of tolbutamide on the possible dissociation of "complexed" insulin during the oral tolbutamide test was studied in 25 patients, using the rat diaphragm bioassay and the previously shown dissociating effect of heparin on serum insulin "complexes" in diluted sera. In 8 normal, 3 borderline, and 14 noninsulin-requiring diabetics data indicated no significant fall in "complexed" serum insulin levels in all but two patients when sera before and 30 to 40 minutes after ingestion of the drug were compared. On the contrary, "complexed" serum insulin levels appeared to rise after tolbutamide in several of the diabetic subjects. The data indicate that the primary effect of tolbutamide is directly on the mechanism of pancreatic release of insulin.

Percutaneous Technique for Catheterization of the Pulmonary Artery Without Fluoroscopy

S. Bevegård, B. Jonsson and I. Karlöf (Dept of Clinical Physiology, Karolinska Hosp, Stockholm) *Brit Heart J* 28:842-844 (Nov) 1966

A technique for catheterization of the pulmonary artery without fluoroscopy is described. A femoral or cubital vein is entered percutaneously with a Cournand needle and a catheter inserted by the Seldinger technique. The Teflon catheter is advanced about 20 cm into the vein. A polyethylene catheter (PE 50 outside diameter 1.2 mm or PE 60 outside diameter 1.2 mm) is introduced through the Teflon catheter. Pressure is monitored and the catheter is allowed to float with the blood stream until pulmonary artery pressure is recorded. Pressure and blood samples can be taken and the method is useful as a bedside procedure. This method was used in 195 patients and no complications developed. Pulmonary artery pressure was obtained in 187 patients.



EDITORIAL

For A Universal School Athletic and Sport Program

Alfred Kahn, Jr., M.D.

The general level of physical fitness of American school children and young adults, both male and female, is substandard. The blame for this lies in many areas. Probably, the outstanding fault is that we, the parents, have tolerated a society in which great emphasis is placed on the control of disease and little importance is placed on the development of a body which can carry a person to a healthy old age. Physical fitness is an antidote to many of the degenerative disorders, and a physically fit person seems to be more resistant to communicable disease. Our society pays lip service to the need for physical fitness but at the same time prefers to ride than walk even short distances, watch T.V. than golf, sit in the grandstand than be on the playing field, etc.

Rectification should start by the school patrons requesting better physical education programs for the school children starting in the grammar school year. Every boy and girl should be encouraged to participate in some athletic program in addition to physical education. At the grammar school level, varsity athletics are encouraged at the expense of having a training program for all children. Why expend a coach's salary on a few better coordinated youngsters when the majority of the children need physical education. By the junior high school level, the dichotomy of grandstand-sitters and playing field athletes is well established. At this stage, the athletic program for girls is usually dropped, and why? Gymnasium classes are not a substitute for organized sports. It is also at this stage that mothers begin to call doctors, "Willie does not like sports, please write him an excuse". Obviously, the fault is not with the schools, or the school boards but with the patrons who are largely disinterested in athletic programs. Senior high school athletic programs show even less interest in getting full ath-

letic participation. For the price of one of the grandstands, several additional playing fields could be built.

Who is to lead the way in remedying this situation? The school patrons. The starting point is for the parent to realize that a physically efficient body is even more important than just meeting the usual standards of height and weight for each age group. With the help of the medical profession, the school boards should be sold on the desirability of a universal sport program. Any student who wants to participate in team or individual sports should be given an opportunity to be on a team. Instruction and supervision should be provided for all children participating in the overall sports program; for example, older students can help coach some of the younger teams.

The medical profession has been somewhat remiss in not educating the public school patrons to the point where the latter will demand supervised after-school athletics for all children. As a matter of fact, the varsity athletic programs in the younger age groups have some serious defects. For example, the training programs demanded of junior high athletes can be too strenuous for physically immature bodies, and the same is even true in high schools at times; there is great emphasis on winning and sportsmanship is not considered enough; there is some question at what age it is safe to start tackle football because of the lasting damage that occurs to an immature knee or long bone.

School age children should be taught that the process of maturing and growing up means development of the body as well as the mind. Universal participation in sports will build healthier youngsters and provide a way of expending energy that might otherwise be channelled into acts of delinquency.



THE MONTH IN WASHINGTON

Washington, D.C.—At a cost of nearly \$1 billion, more than six billion older persons got hospital and medical benefits during the first six months of the medicare program.

Social Security Commissioner Robert M. Ball expressed satisfaction with the overall operations so far of the health insurance program for the elderly. But Ball warned of bed shortages in the nation's capital, in various New England states, and in most rural areas when a new medicare benefit of nursing home care went into effect Jan. 1. He estimated that for 50,000 to 60,000 beds would be needed for extended care in nursing homes.

The Commissioner recommended a number of changes in the program:

- He urged that medicare benefits, which apply to persons 65 or older, be extended to 1.3 million disabled persons.

- He said the major improvement needed in the Social Security program is an "across-the-board" increase in benefits. Over-all benefits to be paid out in 1966 will rise from \$21 billion in 1966 to \$25 billion in 1967, he noted. President Johnson has announced he will seek a boost of about 10 per cent in Social Security benefits in the next Congress.

Ball's report on the first six months of medicare included:

- About 2.5 million elderly persons received free hospital care and 3.5 million benefited from medical services.

- Since medicare began July 1, 1966, hospital occupancy increased 5 per cent, as expected. Thirty per cent of all hospital beds were occupied by those 65 or older at the end of 1966.

- About 6,700 hospitals now are participating in medicare. About 250 hospitals were excluded because they did not meet minimum standards, and 75 hospitals because of racial discrimination.

- Payments to doctors and skilled medical personnel, such as radiologists, have taken too long.

- Overcrowding of hospitals in various "isolated" incidents.

- Almost all of 17.5 million persons who signed up for additional medical insurance at a premium of \$3 maintained their payments.

Seventeen hospitals in five states declared ineligible for federal funds because of failure to comply with provisions of the 1964 Civil Rights Act were granted public hearings by the Public Health Service in Alabama, Louisiana, Mississippi, South Carolina and Texas.

"Discriminatory practices found at the hospitals include the segregation of patients . . . an absence of negro physicians. . . and the segregation of training facilities," a PHS spokesman said.

Sen. George D. Aiken, R., Vt., proposed a nine-point program to liberalize benefits under the government's medicare plan for action by Congress. One would extend medicare drug coverage to prescriptions for old people whether or not associated with hospital confinement. A similar plan was included in a Senate-passed tax bill last summer but was killed in a Senate-House conference. Other Aiken proposals would eliminate deductible and co-insurance features, waiting periods and enrollment deadlines from the medicare plan, lower the 65 year age requirement for women to 62, and permit payment of medical specialist fees customarily provided by hospitals.

* * * * *

The National Advisory Cancer Council reported that, although cancer is still on the increase, more people are being cured of it than ever before.

The report—titled "Progress Against Cancer"—shows that 30 years ago there were 144,774 cancer deaths in the United States, a crude rate of 112.4 per 100,000 of the population. In 1967 an estimated 305,000 deaths will occur, bringing the rate up to 153 per 100,000, according to the report. On the other hand, there has been an improvement in the cure rate. In 1937, less than one in five cancer patients survived five years without

evidence of disease, but currently about 35 per cent, or better than one in three are saved. There is good reason to believe, the report states, that this favorable trend will continue.

Intensive study of six types of cancer is recommended:

Cancer of the breast, which has shown little improvement in incidence or mortality for about 30 years; the lymphomas, one of which, Hodgkin's disease, has been cured in 40 per cent of cases in a localized stage; chronic leukemia and multiple myeloma, for which drug treatment should be greatly improved; lung cancer, which continues to increase, particularly in both men and women smokers; and uterine cancer, which has been significantly reduced and might be almost totally eradicated by early detection with the "Pap" smear.

* * * * *

Expenditures on prescription drug research and development reached a new high, but fewer new products actually reached the market in 1966 than during any single year on record.

C. Joseph Stetler, president of the Pharmaceutical Manufacturers Association, said that the

situation was attributable to several factors, including difficulties encountered under federal drug regulations. He said that the 1962 federal drug amendments had necessitated increasingly lengthy, costly periods for manufacturers to develop technical information required by the government. Stetler added that more time also has been required by the Food and Drug Administration for processing applications.

Total research and development expenditures during 1966 were estimated by Stetler at about \$100 million. He said that only 11 basic new products had been marketed in the year, compared with 23 in 1965, 17 in 1964, 18 in 1963, 28 in 1962, and 41 in 1961. The peak year was 1959 when 63 new products were introduced.

A PMA survey shows that a principal focus of the million-dollar-a-day search by industry for new pharmaceuticals is on drugs acting on the central nervous system and sense organs. These include sedatives, stimulants, tranquilizers and analgesics.

Stetler said that such drugs accounted for \$37.1 million or 19 per cent of \$194.7 million spent in 1965 on applied research and development by 42 of the nation's largest prescription drug firms.

ANSWER—Electrocardiogram of the Month

RATE: App. 125 RHYTHM: Atrial Fibrillation with Multifocal Premature ventricular contractions and runs of ventricular tachycardia.

PR: —sec. QRS: Variable, prolonged QT: Variable

INTERPRETATION:

ABNORMAL: Absent P waves. Bursts of multifocal premature ventricular contractions with runs of ventricular tachycardia. Significant Q in conducted beats in I, aVL, with T inversion same leads.

Complex arrhythmia as described above.

COMMENT: Complex arrhythmia as described above suggesting previous antero-lateral infarction.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Hemophilic arthritis.

X-RAY FINDINGS: There is marked irregularity of the joint surfaces with narrowing of the joint spaces. There are subchondral cysts especially of the right knee. There is evidence of calcification of the synovial lining of the joints.

UNDERGRADUATE COLLEGE IN RELATION TO MEDICAL SCHOOL APPLICATION AND ENROLLMENT

The 8,571 first-time enrolled students in the 1964 entering freshman class were drawn from 741 colleges and universities. As in past years,

90 per cent of the entering class came from less than half (42 per cent) of the total number of colleges while 75 per cent came from less than a quarter (21 per cent) of the total colleges. Detailed information concerning the 25 colleges and universities that provided the largest number of medical school entrants is given in Table 1.

TABLE 1
Twenty-five Colleges and Universities Providing the Largest Number of Entering
First-Year Medical Students, 1964-65
(Ranked by Number of Entrants as Shown in Boldface)

Undergraduate College or University	1964 Male Gradu-	Medical School Applicants		Medical School Entrants†	
	ates (4 Yr.)	Number	% of Gradu- ates	Number	% of Gradu- ates
*Harvard University	1,120	261	23.3	171	15.3
*Columbia University	980	220	22.5	156	15.9
*University of Michigan	1,841	280	15.2	153	8.3
*Cornell University	969	202	20.8	123	12.7
*Stanford University	941	188	20.0	117	12.4
*University of Pennsylvania	990	195	19.7	112	11.3
*University of California, Berkeley	2,219	253	11.4	110	5.0
*Indiana University	1,341	222	16.6	106	7.9
*University of Wisconsin	2,470	241	9.8	106	4.3
*University of Illinois	2,538	267	10.5	99	3.9
Northwestern University	858	177	20.6	97	11.3
*Yale University	936	141	15.1	97	10.4
*University of Texas	1,998	169	8.5	93	4.7
*Dartmouth College	713	162	22.7	92	12.9
*University of Minnesota	2,233	202	9.0	92	4.1
University of California, Los Angeles	1,446	201	13.9	86	5.9
Brooklyn College	1,113	169	15.2	84	7.5
Rutgers University	1,666	143	8.6	83	5.0
*Princeton University	762	119	15.6	78	10.2
Duke University	478	130	27.2	77	16.1
*Emory University	323	139	43.0	76	23.5
*Ohio State University	1,642	184	11.2	74	4.5
University of North Carolina	1,035	119	11.5	74	7.1
University of Notre Dame	1,288	153	11.9	72	5.6
Pennsylvania State University	2,289	135	5.9	69	3.0
Total	34,189	4,672	13.7	2,497	7.3

*Among top 25 schools in 1954, 1956, 1958, 1960, 1962 and 1964.

†Includes only students entering medical school for the first time.

The 17 asterisked schools in Table 1 have ranked among the top 25 suppliers of medical students in each of the 6 alternate years studied from 1954 through 1964. During these years the 17 schools have provided more than 20 per cent of all medical freshmen. (For further details, see Datagrams Vol. 3, No. 4, October 1961 and Vol. 6, No. 8, February, 1965).

Another significant group among the 100 colleges and universities providing the most medical students are the 25 schools that educate the largest number of medical school entrants in relation to their total male graduate output. Specific information for 1964 entrants is presented in Table 2.

TABLE 2
Twenty-Five Colleges and Universities Providing a Significant Proportion of Male Graduates as Medical Entrants, 1964-65
(Ranked by Per Cent of Graduates Entering Medical School as Shown in Boldface)

Undergraduate College or University*	1964 Male Graduates (4 Yr.)	Medical School Applicants Number	% of Graduates	Medical School Entrants Number	% of Graduates	% of Applicants
<i>Emory University</i>	323	139	43.0	76	23.5	54.7
Carleton College	144	39	27.1	31	21.5	79.5
Davidson College	231	68	29.4	48	20.8	70.6
Brandeis University	156	37	23.7	30	19.2	81.1
University of Chicago	311	75	24.1	54	17.4	72.0
Rice University	233	47	20.2	40	17.2	85.1
Western Reserve Univ.	265	79	29.8	45	17.0	57.0
<i>Duke University</i>	478	130	27.2	77	16.1	59.2
<i>Columbia University</i>	980	220	22.5	156	15.9	70.9
Creighton University	207	73	35.3	32	15.5	43.8
<i>Harvard University</i>	1,120	261	23.3	171	15.3	65.5
Franklin and Marshall College	289	73	25.3	43	14.9	58.9
Wesleyan University	205	52	25.4	30	14.6	57.7
Muhlenberg College	179	38	21.2	26	14.5	68.4
Amherst College	243	46	18.9	34	14.0	73.9
College of the Holy Cross	421	85	20.2	58	13.8	68.2
Tulane University	438	111	25.3	60	13.7	54.1
<i>Dartmouth College</i>	713	162	22.7	92	12.9	56.8
<i>Cornell University</i>	969	202	20.8	123	12.7	60.9
Vanderbilt University	432	85	19.7	55	12.7	64.7
<i>Stanford University</i>	941	188	20.0	117	12.4	62.2
Williams College	276	48	17.4	32	11.6	66.7
Oberlin College	246	49	19.9	28	11.4	57.1
<i>Northwestern Univ.</i>	858	177	20.6	97	11.3	54.8
<i>Univ. of Pennsylvania</i>	990	195	19.7	112	11.3	57.4
	11,648	2,679	23.0	1,667	14.3	62.2

*Selected from the top 100 suppliers as having the highest proportion of male graduates entering medical school.
Italicized schools appear in Table 1 and Table 2.

With the exception of the nine italicized schools in Table 2, which appear on both listings, the schools in Table 2 tend to produce fewer male graduates than those in Table 1. Despite the numeric disparity, the "smaller schools" shown in this table are making a greater proportional contribution in providing medical school entrants than are most of their larger counterparts.

The next issue of Datagrams will provide further information on medical students and applicants in relation to undergraduate college attendance.



Dr. Calvin Edward Dungan

Dr. C. E. Dungan of Augusta died December 19th, 1966, at the age of 85. He was born in Searcy, Arkansas on September 13, 1881, and he attended Spears-Langford Military Academy at Searcy and Arkansas College at Batesville. He received his M.D. degree from the University of Arkansas School of Medicine in 1910. He began his long career as a family physician at Riverside, Arkansas, that same year and moved to Augusta two years later. He did post-graduate work at the University of Pennsylvania and New York Graduate School. He was a member of the Woodruff County Medical Society, the Arkansas Medical Society, and the American Medical Association. He was a member of the Methodist Church of Augusta, served on the Official Board and was very active in civic affairs. He served as City and County Health Officer many years and was a member of the Board of Trustees of the University of Arkansas during Governor Futrall's administration, remaining a trustee emeritus of the University. Surviving is his widow.

Dr. Harvey C. Riley

Dr. H. C. Riley, 89-year-old retired Bayou Meto physician, died January 9th, 1967, in Carlisle, Arkansas. Dr. Riley had been a Bayou Meto resident since 1912. A native of Meridian, Mississippi, he was born January 15th, 1877. He received his medical degree from the University of

Tennessee School of Medicine in 1908, and completed post-graduate work in surgery at the Arkansas Medical School in 1910. He was a member of the Baptist Church. Dr. Riley was also a member of the Arkansas County Medical Society, a life member of the Arkansas Medical Society, and a member of the American Medical Association. Survivors include a son and a daughter.

Dr. Howard A. Dishongh

Dr. Howard Dishongh, aged 68 of Little Rock, died January 22nd, 1967. Dr. Dishongh was born at Tillar, Arkansas, son of the late Mr. and Mrs. Jefferson Beauregard Dishongh. He attended the Monticello public schools and was graduated from Davidson College at Davidson, North Carolina in 1918. He worked for a year as a chemist at a Saltville, Virginia, chemical plant and then taught school at Monticello for six months. He entered Columbia University School of Medicine in 1919 and was graduated in 1923. After his internship at New York, he was appointed a clinical instructor of medicine in 1926 at the University of Arkansas School of Medicine. He later became an associate professor of medicine, a position he held until recently. Because of his interest in

aviation medicine, he was designated an authorized medical examiner in 1936 by the Civil Aeronautics Administration. He was president of the Civil Aviation Medical Association in 1958, and was a member of the Executive Council of the Aerospace Medicine Association the same year. Dr. Dishongh was a specialist in internal medicine. He was one of the six doctors who made up the original staff of the Arkansas Baptist Hospital, now the Arkansas Baptist Medical Center. He was elected coroner in 1936, after serving as a deputy coroner under Dr. Lawson C. Aday, and was re-elected every two years after that until 1966. He had filed for re-election in 1966 but later withdrew because of ill health. Dr. Dishongh was a member of the Pulaski County Medical Society, Arkansas Medical Society and American Medical Association. He was a member and past president of the National Coroners Association and the Civil Aviation Medical Association. He was a member of Monticello Masonic Lodge 40, the Arkansas Consistory, Scimitar Shrine Temple and the Royal Order of Jesters. Survivors are his widow and one son.



P E R S O N A L A N D N E W S I T E M S

Five Doctors Awarded

Awards have been presented to five physicians in the Batesville area who have completed a three-hour session in cardio-pulmonary resuscitation. The physicians are: Dr. Jim Lytle, Dr. R. D. Slaughter, Dr. Harold Tatum, Dr. Alfred Hathcock, and Dr. James Stalker. Dr. John E. Allen, Jr., chairman of the Cardiopulmonary Resuscitation Committee of the Arkansas Heart Association, taught the course.

Council on Smoking Held

The first annual meeting of the Arkansas Interagency Council on Smoking and Health was held in Little Rock in December. The council was organized in November of 1965 to coordinate

the efforts of various health groups in pointing out the potential health hazards of smoking. Dr. John V. Satterfield of Little Rock represented the Arkansas Medical Society.

Dr. Jansen Elected

Dr. G. Thomas Jansen of Little Rock has been elected secretary of the Section on Dermatology of the Southern Medical Association at a meeting in Birmingham, Alabama.

Dr. Ellis Addresses Meeting

Dr. Jacob Ellis of El Dorado spoke at a luncheon meeting of the Kiwanis Club in December at El Dorado. "Structure of the Self in the 20th Century" was his topic.

Dr. Wynne Appointed

Dr. George F. Wynne of Warren, Arkansas was appointed to the State Medical Board by Governor Orval E. Faubus in December. The appointment was to fill the unexpired term of the late Dr. Garland Murphy, Jr., of El Dorado. Dr. Wynne was sworn in by his father-in-law, Justice Ed F. McFaddin of the Arkansas Supreme Court. Justice McFaddin retired from the Supreme Court on January 1, 1967.

Dr. Ramsey Speaks

Dr. R. C. Ramsey, Jr., director of the Division of Maternal and Child Health, State Health Department, spoke at a P.T.A. meeting at DeQueen in January. His topic was "Behavior Problems of the Pre-School Child".

Dr. and Mrs. Wright Honored

Dr. and Mrs. H. B. Wright of Waldron were both surprised and honored on Sunday, December 25th, by a group of their friends who called at their home to help them celebrate their 25th wedding anniversary.

Dr. Bachman Is Chairman

Dr. D. S. Bachman of Millard-Henry Clinic in Russellville has been appointed chairman of the Committee on Trauma by the American College of Surgeons. Dr. Bachman attended the 78th annual session of the Southern Surgical Association in December at Boca Raton, Florida.

Dr. Cooper Moves to Louisiana

Dr. E. J. Cooper, who has practiced medicine in England, Arkansas for the past four and one half years, moved to Baton Rouge, Louisiana in January where he is associated with Drs. Robins and Thompson.

Dr. Howard Is Speaker

Dr. John G. Howard of Little Rock spoke at the meeting of the Russellville Lions Club in January. His topic was "Alcoholism".

Dr. Baldwin to Magnolia

Dr. Ronald L. Baldwin, a Waldo, Arkansas native, has joined the staff of the Southwest Arkansas Diagnostic and Remedial Center in Magnolia as chief pediatrician on a part-time basis. Dr. Baldwin

is currently serving as chief of pediatrics at the Air Force Hospital at Sheppard Air Force Base, Texas. In June he will be employed half-time at the Center and will be in private practice in Magnolia.

Dr. Walt Elected Director

Dr. James R. Walt has been elected Director of St. Vincent Tumor Clinic, having served two one-year terms as Assistant Director. He succeeds Dr. Charles R. Henry. Dr. Mose Smith, III, has been elected Assistant Director for St. Vincent Tumor Clinic, a post he held previously. They head the tumor clinic staff, whose members are selected from the hospital staff, serving without remuneration on a voluntary basis.

St. Vincent Tumor Clinic, which provides services for medically indigent cancer patients, meets on Tuesday to receive gynecology cases and on Wednesday for surgery and other cases. Clinic referrals are made by the patient's doctor. St. Vincent Tumor Clinic is the largest in the state with the exception of University Hospital Tumor Clinic.

Awards Presented

Meritorious Service Awards have been presented to Dr. Charles R. Henry, of Little Rock, and Dr. Mitchell M. Young, of Texarkana, by the Arkansas State Cancer Commission, official agency which administers the cancer program in Arkansas.

These awards were made in appreciation of distinguished voluntary professional services to the clinic and cancer program of the state. Dr. Henry is the immediate past director of St. Vincent Tumor Clinic, Little Rock. Dr. Young is completing his second year as director of Bowie-Miller Counties Medical Society Tumor Clinic, St. Michael's Hospital, Texarkana.

Baxter Hospital, Mountain Home

Dr. William R. Snow of Mountain Home has been elected chief of staff of the Baxter General Hospital in Mountain Home. Dr. Ben Saltzman was re-elected secretary of the hospital physicians' staff.



PROCEEDINGS OF SOCIETIES

Pope-Yell

Dr. Stanley Teeter of Russellville is the new 1967 president of Pope-Yell County Medical Society. Dr. W. E. King is secretary-treasurer.

Ouachita

The Ouachita County Medical Society sponsored a measles vaccination campaign in January at the Ouachita County Health Department in Camden.

New county officers elected by Ouachita County Medical Society are: Dr. Judson Hout, president; Dr. Larry Killough, vice president; Dr. Bruce Ellis, delegate; Dr. James Guthrie, alternate delegate; Dr. L. V. Ozmert, secretary. Dr. Joseph L. Ellis is the retiring president.

Baxter

Dr. Jack Wilson of Mountain Home has been elected 1967 president of the county society. Dr. Ben Saltzman was re-elected secretary and Dr. John F. Guenther was re-elected as the group's delegate to the Arkansas Medical Society.

Garland

New officers of Garland County Medical Society are: Dr. W. R. Lee, president; Dr. W. G. Klugh, Jr., vice president, and Dr. Louis R. McFarland, secretary-treasurer. Delegates are Dr. M. R. Springer, Jr., Dr. Cecil Parkerson, and Dr. John Trieschmann.



BOOK REVIEWS

THE THYMUS: EXPERIMENTAL AND CLINICAL STUDIES, by G. E. W. Wolstenholme and Ruth Porter, published by Little, Brown and Company, Boston, Massachusetts.

chusetts.

This symposium on the thymus gland does, as the title states, include both experimental and clinical studies. The thymus is of increasing importance to the profession because of the current great interest in organ grafts. In this book there are discussions pertaining to human autoimmune disease. The immunoproliferative disorders are described. There are many other interesting reports in this text. This is a thoroughly interesting, small book on the thymus gland and is of considerable interest to the internist and surgeon, as well as to research worker.

TOUCH HEAT AND PAIN, by A. V. S. De Reuck and Julie Knight, published by Little, Brown and Company of Boston, Massachusetts.

This text is of principal interest to the neurologist, neuroanatomist and neurosurgeon. It has little of interest to the profession in general and is not recommended beyond the limited specialists noted above.

DISORDERS OF THE RESPIRATORY TRACT IN CHILDREN, edited by Edwin L. Kendig, Jr., published by W. B. Saunders Company, Philadelphia and London, 1967.

This text is edited by Dr. Kendig and written by twenty-nine different physicians. The book is quite inclusive; it is well illustrated. There are many illustrations and charts. There is a good section on diagnostic and therapeutic procedures. The first chapter is of particular interest and it discusses in considerable detail the functional basis of respiratory pathology.

This book is highly recommended to pediatricians, general practitioners and medical students.



Studies on Prevention of Transfusion Hepatitis by γ -Globulin

W. Creutzfeldt et al (Medizinische Universitätsklinik, Humboldtalle 1, Göttingen, Germany)
Deutsch Med Wschr 91:1905-1908 (Oct 28) 1966

One hundred donors of one to three units of blood (500 ml each) were given 10 ml of a 5% solution of γ -globulin by intravenous injection. Serum glutamic pyruvic transaminase levels were determined six months later. In 151 control subjects who had also been transfused, transfusion hepatitis occurred in 16 (10.6%), in four instances associated with jaundice. In the other cases receiving γ -globulin there were only four (4%) of transfusion hepatitis, without jaundice. The four cases of hepatitis took a light and brief course: three of the four occurred in the 49 patients who, in addition to the 5% γ -globulin solution, had four weeks later been given γ -globulin by intramuscular injection as well.



Sponsored by Arkansas Tuberculosis Association

LUNG SCANNING IN DIAGNOSING PULMONARY THROMBOEMBOLISM

Pulmonary arteriography and radioisotopic lung scans in a group of patients with a variety of cardio respiratory disorders showed that the arteriographic technique is of greater value in determining the location and extent of intra-arterial lesions than scanning.

Selective pulmonary arteriography and radioisotopic lung scans were performed in 73 patients suspected of having pulmonary thromboembolism and in patients known to have other cardiorespiratory illnesses. The objective was to identify the accuracy of the scan in the diagnosis of thromboembolic disease.

The final diagnosis was pulmonary thromboembolism in 27 of the patients and failure of the left ventricle without pulmonary thromboembolism in 14. The diagnosis in the remainder included pneumonia, pulmonary emphysema, bronchogenic carcinoma, and a variety of other cardiac or lung conditions.

The diagnosis of pulmonary thromboembolism was made on the basis of angiographic evidence of intra-arterial filling defects or obstructed pulmonary arteries or both, together with appropriate clinical findings.

A selective pulmonary arteriogram and a radioisotopic lung scan were performed in all the patients. The interval between the two studies did not exceed 24 hours and was less than one hour in most cases.

The arteriograms were obtained by guiding the catheter under fluoroscopic observation to a point in or just beyond the undivided portion of the pulmonary artery.

Lung scanning was begun promptly after 100 to 150 μ C of ^{131}I -labeled macroaggregated human serum albumin had been injected into an antecubital vein.

Since the great majority of macroaggregated particles are 10 to 100 microns in diameter, most of them are trapped at the precapillary level during their initial transit through the lungs. Of the radioiodinated material that passes through the pulmonary capillaries, an insignificant amount presumably returns to the lungs via the bronchial arteries. Distribution of the macroaggregated albumin throughout any segment of the lung is proportional to the relative pulmonary blood flow to that segment. Thus, the radioactivity recorded from different regions of the lung is an index of the relative amounts of pulmonary capillary perfusion in those sites.

Of the 73 scans, 63 were anterior and 10 posterior. The rectilinear scintillation scanner was set to accept a pulse height differential of 340 to 400 kev. A contrast enhancement circuit was utilized with background cutoff determined by the count rate over the heart.

Scanning was done with the patient lying directly beneath an X-ray tube. At the end of the procedure, a roentgenogram of the chest was obtained to ensure accurate localization of "cold" areas and diaphragmatic position.

In the patients with pulmonary thromboembolism the major arteriographic abnormalities were complete or incomplete obstruction of various pulmonary arterial branches, intraarterial filling defects, decrease in volume of affected lung segments, changes in the caliber of involved arteries proximal or distal to the occlusive lesion, or combinations of these.

In the group with cardiorespiratory illnesses other than thromboembolism, the angiographic findings varied, but in none was there evidence of intravascular occlusions or filling defects.

Of the 27 patients with pulmonary thromboembolism, 22 had scans showing decreased radioactivity over the same regions of lungs in which the angiogram revealed intra-arterial occlusive lesions.

HERBERT L. FRED, M.D.; JOHN A. BURDINE, JR., M.D.; DAVID A. GONZALEZ, M.D.; ROBERT W. LOCKHART, M.D.; CARROLL A. PEABODY, M.D.; and JAMES K. ALEXANDER, M.D. *The New England Journal of Medicine*, November 10, 1966.

Most of the patients with disorders other than pulmonary thromboembolism had abnormal scans characterized by varying degrees of diminished radioactivity over the diseased segment or segments.

LIMITATIONS

Although all but one of the 27 patients with angiographic evidence of pulmonary thromboembolism had abnormal lung scans, in five the scan failed to reflect accurately the location and extent of the lesions. Of the five patients, four had relatively normal radioactivity over the areas of lung supplied by main or lobar pulmonary arteries that contained large, partially occlusive thromboemboli. Thus, the scanning technique may not disclose the presence of large intravascular lesions when there is generalized reduction in pulmonary arterial blood flow, particularly in one lung.

The one patient with pulmonary thromboembolism whose scan was normal had acute pleuritic pain, frank hemoptysis, minimal pleural effusion, and a small posterior, juxtadiaphragmatic infiltrate. His angiogram disclosed essentially complete obstruction of the segmental artery supplying the infarcted tissue. Forty-eight hours after the initial study, the infiltrate had enlarged to the extent that a scan now showed a "cold" area in the diseased region.

This case illustrates the limitations of the scanning technique in detecting small areas of decreased perfusion when they are in close proximity to the diaphragm. Normal scans may also occur if reduction of pulmonary blood flow is bilateral, diffuse, and equal.

The majority of patients without thromboembolic disease had scans showing decreased radioactivity over regions of lung in which the pulmonary arteries were angiographically patent. This provides further support for the concept that "cold" areas on the lung scan may result from factors other than obstructive lesions within the pulmonary arteries.

Additional reasons for caution in the interpretation of the lung scan deserve emphasis. The method does not distinguish pulmonary bullae from thromboemboli, both of which may go undetected or appear as avascular, hyperlucent areas on roentgenograms of the chest. Patients with failure of the left ventricle may have diminished radioactivity over one or both lower-lung fields. This is significant not only because of the increased incidence of pulmonary thromboembolism

in patients with cardiac disease but also because of the frequency with which such emboli lodge in the lower lobes.

While angiograms need not be taken in every patient suspected of having pulmonary thromboembolism, nevertheless, the diagnosis remains presumptive without angiographic confirmation, regardless of how "typical" the clinical, laboratory, and roentgenographic picture may be. Angiographic proof of thromboembolism is desirable but need not be a prerequisite for anticoagulant therapy or for interruption of blood flow through the inferior vena cava. However, no patient should undergo pulmonary embolectomy before the lesions have been demonstrated arteriographically.



Ampicillin in the Treatment of Salmonella Carriers

J. C. Perkins, R. L. Devetski, and H. F. Dowling
(Univ of Illinois College of Medicine, 840 S
Wood St, Chicago) *Arch Intern Med* 118:528-
533 (Dec) 1966

Six chronic *Salmonella* carriers were treated with ampicillin. Three carried *S typhosa* in the stools and one each carried *S indiana* and *S montevideo* while the sixth was a *S enteritidis* urinary carrier. Ampicillin treatment failed to eliminate the carrier state in three of the four with cholelithiasis; the fourth had negative stool cultures for six months after a second course of ampicillin. The stool of the carrier with a normal gallbladder remained free of *S montevideo* for 30 months after treatment with ampicillin but *S enteritidis* was not eliminated from the urine of the other carrier by ampicillin treatment. Neither the minimal inhibitory nor the minimal bacterial concentrations of ampicillin against the infecting strain of *Salmonella* correlated with success or failure of therapy. In the absence of gallbladder disease, ampicillin will usually eliminate *S typhosa* from the stools of chronic carriers, and probably other salmonellae also. When cholelithiasis or definite cholecystitis is present, cholecystectomy should be performed with accompanying ampicillin therapy. Ampicillin also shows promise in the treatment of urinary carriers of salmonellae.

ANNUAL MEETING PROGRAM

April 30 — May 3, 1967

Hot Springs



CONVENTION OFFICIALS

GENERAL CHAIRMAN: A. S. Koenig, M.D., Fort Smith

PROGRAM COMMITTEE:

Thomas E. Townsend, M.D., Pine Bluff

Hal R. Black, Jr., M.D., Little Rock

Amail Chudy, M.D., North Little Rock

John V. Busby, M.D., Little Rock

Art B. Martin, M.D., Fort Smith

Joseph S. Robinette, M.D., Pine Bluff

Betty Ann Lowe, M.D., Texarkana

Wright Hawkins, M.D., Fort Smith

E. Z. Hornberger, M.D., Fort Smith

SCIENTIFIC EXHIBITS CHAIRMAN: J. Harry Hayes, Jr., M.D.,
Little Rock

GOLF TOURNAMENT CHAIRMAN: Robert F. McCrary, M.D.,
Hot Springs

MEMORIAL SERVICE CHAIRMAN: Kenneth E. Lilly, M.D.,
Fort Smith

PRESS LIAISON: C. Randolph Ellis, M.D., Malvern

Digest of Events

REGISTRATION

The registration desk will be located on the Mezzanine of the Arlington Hotel and will be open as follows:

Sunday, April 30	8:00 A.M. to 5:00 P.M.
Monday, May 1	8:00 A.M. to 5:00 P.M.
Tuesday, May 2	8:00 A.M. to 5:00 P.M.
Wednesday, May 3	8:00 A.M. to 12:00 Noon

Registration cards and badges will be prepared in advance for the officers of the Arkansas Medical Society and for the county society delegates. Delegates are requested to present credentials in proper form when registering.

All members and visitors are required to register, as admission to all sessions will be by badge only. Bring your 1967 membership card to facilitate registration. Members of the American Medical Association from other states may register as guests.

There will be no registration fee. Purchase of tickets for the cocktail parties and banquet will be optional.

TELEPHONE SERVICE

A special convention telephone will be installed at the Society's registration desk. The telephone number will be NA 3-1721. Give this number to your office personnel so that they may contact you in case of an emergency.

MEETINGS OF THE COUNCIL

The Council of the Arkansas Medical Society will meet as follows:

Sunday, April 30	10:00 A.M., Juno Room (Sixth Floor Tower Suite)
Monday, May 1	7:30 A.M., Juno Room (Sixth Floor Tower Suite)
Tuesday, May 2	7:30 A.M., Juno Room (Sixth Floor Tower Suite)
Wednesday, May 3	9:00 A.M., Juno Room (Sixth Floor Tower Suite)
Wednesday, May 3	Immediately following the adjournment of the House of Delegates in Room "C" of the Conference Center (Brief re-organizational meeting)

The voting members of the Council are: The councilors, the president, the first vice president, president-elect, secretary and treasurer. The speaker, vice speaker, and past presidents are members ex-officio without vote.

HOUSE OF DELEGATES

The opening session of the House of Delegates of the Arkansas Medical Society will be called to order at 1:00 P.M. on Sunday, April 30th, in Room "C" of the Conference Center, Arlington Hotel.

The closing session and election of officers will begin at 10:00 A.M. on Wednesday, May 3, the same room.

All items of business will be referred by the Speaker of the House of Delegates to three reference committees. Open hearings on all resolutions and reports will begin at 3:30 P.M. on Sunday, April 30. (See separate schedule for meeting places). Any member of the Arkansas Medical Society is welcome to attend the meetings of the reference committees and to express his views on the various reports, resolutions, etc. After the open hearings, the reference committees will go into executive session for the purpose of preparing reports and recommendations to the House of Delegates.

SCIENTIFIC SESSIONS

The scientific program of the annual meeting will be held all day Monday and until noon on Tuesday. Distinguished guest speakers will come from a number of different states to appear on the program. The lectures will be presented in Room

"C" of the Conference Center of the Arlington. All convention visitors enter the lecture hall through the exhibit area.

Section meetings will be held on Tuesday afternoon.

The complete program for the annual meeting begins on page 397.

TECHNICAL AND SCIENTIFIC EXHIBITS

Thirty-eight displays by firms whose products and services are of interest to Arkansas physicians will be housed in the Conference Center of the Hotel on the Mezzanine floor level.

In addition, there will be sixteen scientific and institutional exhibits in the adjacent area of the Conference Center. A complete list of the scientific and technical exhibits appears on pages 401, 402, and 420. Exhibit hours are from 8:00 A.M. to 5:00 P.M. on Monday and Tuesday.

MONDAY EVENING COCKTAIL PARTY

A cocktail party will be held on Monday evening, beginning at 6:00 P.M. in the Crystal Ballroom of the Arlington Hotel. Tickets will be on sale at the convention registration desk.

TUESDAY EVENING COCKTAIL PARTY

A cocktail party will precede the Inaugural Banquet on Tuesday evening. The party will be held on the Pool Deck, beginning at 6:00 P.M. Tickets will be on sale at the convention registration desk.

PRESIDENT'S INAUGURAL BANQUET

The social highlight of the 1967 Annual Session will be the President's Inaugural Banquet on Tuesday evening, May 2nd, in the Crystal Ballroom of the Arlington Hotel. A delicious buffet dinner will be served, beginning at 7:00 P.M.

Following dinner, Dr. Joseph A. Norton of Little Rock will be inaugurated as president of the Society.

Tickets for the dinner will be \$5.00 per person and will be available at the registration desk.

PAST PRESIDENT'S BREAKFAST

The traditional breakfast for former presidents of the Arkansas Medical Society will be held at 7:30 A.M. on Wednesday, May 3rd, in Cafe 2 of the Arlington Hotel.

FIFTY YEAR CLUB BREAKFAST

The Society will host a breakfast for members of the Fifty Year Club at 7:30 A.M. on Tuesday, May 2nd, in Cafe 2 of the Arlington Hotel. Members of the Fifty Year Club may make a reservation for the breakfast at the Society's convention registration desk.

AUXILIARY MEETING

The Woman's Auxiliary to the Arkansas Medical Society will hold its annual meeting April 30-May 2 in the Arlington Hotel. Registration will be in the North Parlor of the Hotel; General meetings will be held in the Tower Suite on the Mezzanine Level (Venus Room).

FREE COFFEE BAR

The Arkansas State Medical Assistants Society will have a free "coffee bar" in the exhibit area of the Conference Center. Members are urged to visit the medical assistants for a cup of coffee and discussion of the medical assistants organization.

MEMORIAL SERVICE

A joint Society-Auxiliary Memorial Service will be held Tuesday morning, May 2nd, in the Ballroom of the Arlington Hotel. See page 398 for the program.

ARKANSAS HEART ASSOCIATION—CARDIOPULMONARY RESUSCITATION

The Arkansas Heart Association will have physicians present at the State Medical Society meeting to offer a course in Cardiopulmonary Resuscitation, including definitive therapy. The course takes approximately two and a half hours to complete. Physicians may take the course in segments (i.e. one part on one day and the rest at a later time as is convenient), during the following times:

Sunday, April 30	1:00 P.M. to 5:00 P.M.
Monday, May 1	9:00 A.M. to 5:00 P.M.
Tuesday, May 2	9:00 A.M. to 10:30 A.M.

A segment will begin each hour on the hour.

The courses will be held in the 7th floor Conference Suite of the Arlington Hotel (Appolo Room)

Related Meetings

Joint Scientific Session, Pediatrics and Obstetrics-Gynecology Sections

The Pediatric and Obstetrics-Gynecology Sections will hold a joint meeting on Tuesday, May 2nd, beginning at 2:00 P.M. in the Appolo Room of the Arlington Hotel (Conference Suite on 7th Floor). The program is as follows:

- 2:00- 2:30 P.M. "Obstetrical Aspects of Neonatal Trauma", Thomas W. McElin, M.D., Chairman, Department of Obstetrics and Gynecology, Evanston Hospital, Evanston
- 2:30- 3:00 P.M. "Pediatric Aspects of Neonatal Trauma", Lula O. Lubchenco, M.D., Professor of Pediatrics and Co-Director, Newborn and Premature Infant Center, University of Colorado Medical Center, Denver
- 3:15 P.M. Panel on Prevention of Neonatal Trauma
 Moderators: John B. Nettles, M.D., Associate Professor, Department of Obstetrics and Gynecology, University of Arkansas Medical Center
 Betty A. Lowe, M.D., Texarkana
 Panel Members: Thomas W. McElin, M.D., Lula O. Lubchenco, M.D., and Richard B. Clark, M.D., Department of Anesthesiology, University of Arkansas Medical Center

Following the Joint Meeting, the Arkansas Academy of Pediatrics will have a business meeting.

Association of Tumor Clinic Staff Members in Arkansas

The Association of Tumor Clinic Staff Members in Arkansas will meet in the Fountain Room of the Arlington Hotel on Monday, May 1st, from 12:15 P.M. to 1:45 P.M. for a luncheon and informal program. Dr. G. Thomas Jansen, Association Chairman, will preside. A Joint Scientific Session of the Arkansas Medical Society and the Association of Tumor Clinic Staff Members in Arkansas will begin at 2:00 P.M. in Room "C" of the Conference Center, Arlington Hotel. (See page 397 for program.)

Arkansas Society of Pathologists

The Arkansas Society of Pathologists will have a luncheon and business meeting on Tuesday, May 2nd, beginning at 12:00 noon in the Jupiter Room of the Hotel (Conference Suite on the 5th floor).

Arkansas Orthopedic Society

The Arkansas Orthopedic Society will meet on Tuesday, May 2nd, for a luncheon beginning at 12:30 P.M. in the Mars Room of the Hotel (Conference Suite on the 4th floor). Following lunch, there will be a business meeting and scientific session.

Arkansas Radiological Society

The Arkansas Radiological Society will meet on Tuesday, May 2nd, in the Juno Room of the Arlington Hotel (Conference Suite on 6th floor). A luncheon beginning at 12:30 P.M. will be followed by a scientific session beginning at 1:30 P.M. with Dr. William R. Christensen, Professor and Head of the Department of Radiology, University of Utah, as guest speaker. A business meeting will be held from 2:30 P.M. to 4:00 P.M.

Eye, Ear, Nose and Throat Section

The EENT Section will hold an all-day meeting on Tuesday, May 2nd, beginning at 9:00 A.M. in the Mercury Room of the Hotel (Conference Suite on the 3rd floor). Speakers for the morning session will include Dr. G. O. Proud of the University of Kansas Medical Center and Dr. Thomas H. Raymond of Fort Smith. Following luncheon in the same room, the scientific session will continue as follows:

“Glaucoma—”

1. “Diagnosis”

2. “Medical and Surgical Therapy”

A. N. Lemoine, Jr., University of Kansas Medical Center

Arkansas Academy of General Practice

The Arkansas Academy of General Practice will hold a scientific session from 2:00 to 4:00 P.M. on Tuesday, May 2nd, in the Venus Room of the Hotel (Conference Suite on 2nd floor). Dr. E. Adams Daneman, St. Simons Island, Georgia, will discuss “The Recognition and Treatment of Depressive Disorders”.

Arkansas Psychiatric Society

The Arkansas Psychiatric Society will meet at 2:00 P.M. on Tuesday, May 2nd, in the Montagu Room of the Arlington Hotel.

CRIPPLED CHILDREN'S DIVISION

The Crippled Children's Division of the State Welfare Department will hold a luncheon beginning at 12:30 P.M. on Monday, May 1, in the Mercury Room of the Arlington (Conference Suite on Third floor). The luncheon and meeting are open to all consultants of the Crippled Children's Division and any interested physician.

UROLOGY SECTION

The Urological Section plans a luncheon meeting for Tuesday, May 2, beginning at 12:30 P.M. in Room “C” of the Conference Center.

A discussion of renal physiology by W. J. Flanagan, M.D. will follow luncheon. There will also be a pyclogram conference.

Monday Morning, May 1, 1967

Room "C", Conference Center,
Arlington Hotel
(enter through exhibit hall)

9:00 A.M. Scientific Session

"The Detection of High Risk Infants"

Lula O. Lubchenco, M.D., Professor of Pediatrics and Co-Director, Newborn and Premature Infant Center, University of Colorado Medical Center, Denver

"Gastric Ulcer"

W. R. Christensen, M.D., Professor and Head, Department of Radiology, University of Utah College of Medicine, Salt Lake City

"Amenorrhea: Diagnosis and Treatment"

Thomas W. McElin, M.D., Chairman, Department of Obstetrics

and Gynecology, Evanston Hospital, Evanston

10:30 A.M. Period for Visiting Exhibits

11:00 A.M. Scientific Session

"Precipitating Causes of Congestive Heart Failure"

James F. Hammarsten, M.D., Vice-Chairman, Department of Medicine, University of Oklahoma School of Medicine, Oklahoma City

11:30 A.M. General Session

Address of the President

L. A. Whittaker, M.D., President, Arkansas Medical Society, Fort Smith

Monday Afternoon, May 1, 1967

MONDAY AFTERNOON, MAY 1, 1967

Room "C", Conference Center,
Arlington Hotel
(enter through exhibit hall)

Joint Scientific Session of the
Arkansas Medical Society
and the
Association of Tumor Clinic
Staff Members in Arkansas

2:00 P.M. "Chemosurgery for the Microscopically Controlled Excision of Skin Cancer"

Frederic E. Mohs, M.D., Head of Chemosurgery Clinic and Associate Clinical Professor, Department of Surgery, University of Wisconsin, Madison, Wisconsin

3:00 P.M. Period for Visiting Exhibits

3:20 P.M. Scientific Session

"Differential Diagnosis of the Red Eye"

Albert N. Lemoine, Jr., M.D., University of Kansas Medical Center, Kansas City

Clinical Pathological Conference

William E. Jaques, M.D., Professor and Head, Department of Pathology, University of Arkansas School of Medicine, Little Rock

Gilbert S. Campbell, M.D., Professor and Head, Department of Surgery, University of Arkansas School of Medicine, Little Rock

The Society wishes to express its thanks to the Association of Tumor Clinic Staff Members in Arkansas for furnishing a speaker for the above afternoon program.

Tuesday Morning, May 2, 1967

Room "C", Conference Center,

Arlington Hotel

(enter through exhibit area)

(See EENT Section Program listing under "Related Meetings")

9:00 A.M. Scientific Session

Symposium: Organ Transplants "Immunologic Aspects"

William Theodore Kniker, M.D.,
Assistant Professor of Pediatrics
and Assistant Director of the Clinical
Study Center, University of Arkansas
Medical Center, Little Rock

"Bone Marrow Transplants"

Joseph W. Ferrebee, M.D., Mary
Imogene Bassett Hospital, Coopers-
town, New York

"Kidney Transplants"

W. J. Flanigan, M.D., Assistant
Professor of Medicine; Clinical
Study Center, University of Arkansas
Medical Center, Little Rock

10:30 A.M. Period for Visiting Exhibits

11:00 A.M. Scientific Session

"Enzymes in Diagnosis of Disease"

Ralph M. Hartwell, M.D., Clinical
Professor of Pathology, Louisiana
State University Medical Center,
New Orleans

Memorial Service

Arkansas Medical Society and the
Woman's Auxiliary to the
Arkansas Medical Society

A joint Memorial Service of the Arkansas Medical Society and the Woman's Auxiliary will be held in the Crystal Ballroom of the Arlington Hotel, beginning at 11:30 A.M. on Tuesday, May 2nd. Dr. L. A. Whittaker, President of the Society, will preside.

Dr. Kenneth E. Lilly of Fort Smith will give the Memorial Address.

The following Auxiliary members have passed away since the 1966 convention: Mrs. Allan G. Talbot, Lake Village; Mrs. Harry White, Rogers.

The following is a listing of Society members who have passed away since the 1966 convention:

Dr. Austin F. Barr, Forrest City

Dr. William P. Barron, Harrison

Dr. Byron A. Bennett, Little Rock

Dr. W. H. Bollinger, Charleston

Dr. W. H. Bruce, Pine Bluff

Dr. James E. Cox, Prescott

Dr. Howard A. Dishongh, Little Rock

Dr. Charles W. Dixon, Gould

Dr. Franklin M. Duckworth, Siloam Springs

Dr. Calvin E. Dungan, Augusta

Dr. Miles E. Foster, Fort Smith

Dr. Hershel F. Gray, Little Rock

Dr. W. E. Hamil, Pocahton

Dr. Daniel R. Hardeman, Little Rock

Dr. Julius H. Hellums, Dumas

Dr. Louis K. Hundley, Little Rock

Dr. Glenn H. Johnson, Little Rock

Dr. B. T. Kolb, Little Rock

Dr. Paul Ledbetter, Jonesboro

Dr. Garland Doty Murphy, Jr., El Dorado

Dr. Van D. McAdams, Cord

Dr. Harvey C. Riley, Stuttgart

Dr. James H. Scroggin, Conway

Dr. Harvey D. Shipp, Little Rock

Dr. Charles A. Smith, III, Little Rock

Dr. Albert H. Tribble, Hot Springs

Dr. Charles J. Watkins, Little Rock

House of Delegates Meetings

HOUSE OF DELEGATES MEETING

FIRST MEETING

1:00 P.M., Sunday, April 30, 1967

Room "C", Conference Center,
Arlington Hotel

- I. Call to order
- II. Roll Call of Delegates
- III. Report of Credentials Committee
- IV. Introduction of Guests

Mrs. Asher Yaguda, Newark, New Jersey,
President, Woman's Auxiliary to the American Medical Association

Mrs. C. C. Long, Ozark, Arkansas, First
Vice President, Woman's Auxiliary to the
American Medical Association

Mrs. John McCollough Smith, Little Rock,
President, Woman's Auxiliary to the Arkansas
Medical Society
- V. Adoption of Minutes of 90th Annual Session, as published in the June 1966 issue of the Journal of the Arkansas Medical Society, and the minutes of the Special Session of the House of Delegates held December 11, 1965, as published in the February 1966 issue of the Journal.
- VI. Report of the Council on meetings held, if any, since publication of March Journal
- VII. Report of Committees
(Reports as published in March Journal may be amended by Committee Chairmen. All reports will be referred to the Reference Committees.)
- VIII. Consideration of Proposed Amendments to the Constitution (See page 419 for copy of proposed changes)
- IX. New Business
(Notification of vacancies to be filled on State Boards)
- X. Selection of Nominating Committee
- XI. Adjournment

FINAL MEETING

10:00 A.M., Wednesday, May 3, 1967

Room "C", Conference Center,
Arlington Hotel

- I. Call to order
- II. Report of Nominating Committee
- III. Election of Officers:

President-elect
First Vice President
Second Vice President
Third Vice President
Treasurer
Secretary
Speaker of the House of Delegates
Vice Speaker of the House of Delegates
Councilors (one from each of the ten councilor districts):
Councilors whose terms expire are:

 1. Eldon Fairley, Osceola
 2. Paul Gray, Batesville
 3. Paul Millar, Stuttgart
 4. T. E. Townsend, Pine Bluff
 5. George C. Burton, El Dorado
 6. Karlton Kemp, Texarkana
 7. Jack Kennedy, Arkadelphia
 8. W. Payton Kolb, Little Rock
 9. Stanley Applegate, Springdale
 10. C. C. Long, Ozark

Delegate to the American Medical Association House of Delegates (term of J. W. Kennedy, expires December 31, 1967—eligible for re-election)
Alternate Delegate to the American Medical Association House of Delegates (term of Alfred Kahn, expires December 31, 1967, eligible for re-election)
- IV. Election to fill vacancies on State Medical Board and State Board of Health
- V. Report of Reference Committees
- VI. Supplemental Report of the Council
- VII. Selection of Place for 1969 Annual Session
- VIII. Adjournment

REFERENCE COMMITTEES

Reference Committees appointed by the Speaker of the House of Delegates will hold open hearings to discuss the committee reports published in the March Journal, as well as any supplemental reports and resolutions referred to them during the first meeting of the House of Delegates on Sunday, April 30. All members are urged to participate in the discussion at the meetings. The committees will meet as follows:

COMMITTEE NO. 1—George K. Mitchell, Little Rock, Chairman

E. C. Gresham, Crossett

Edward M. Cooper, Jonesboro

3:30 P.M., Sunday, April 30, 1967, Mercury Room, Arlington Hotel (3rd floor Conference Suite)

COMMITTEE NO. 2—Lee B. Parker, McGehee, Chairman

Paul Millar, Stuttgart

R. M. Bransford, Texarkana

3:30 P.M., Sunday, April 30, 1967, Mars Room, Arlington Hotel (4th floor Conference Suite)

COMMITTEE NO. 3 — Robert McCrary, Hot Springs, Chairman

James K. Patrick, Fayetteville

William W. Biggs, Helena

3:30 P.M., Sunday, April 30, 1967, Jupiter Room, Arlington Hotel (5th floor Conference suite)

VACANCIES ON STATE BOARDS

Arkansas State Board of Health

Vacancies occur in the Third and Sixth Congressional districts, the counties of which are listed below. Members from these counties are urged to meet in Room "C" of the Conference Center, Arlington Hotel, immediately following adjournment of the House of Delegates meeting on Sunday, April 30, to vote for nominees. Nomi-

nations should be reported to the convention registration desk. There must be three nominees for each vacancy. Third District: Counties in district—Baxter, Benton, Boone, Carroll, Crawford, Franklin, Johnson, Logan, Madison, Marion, Newton, Scott, Searcy, Sebastian, Van Buren, and Washington. Present member: Dr. John W. Dorman, Springdale, term expires December 31, 1967. Eligible for reappointment.

Sixth District. Counties in District — Arkansas, Chicot, Cleveland, Dallas, Desha, Drew, Garland, Grant, Hot Spring, Jefferson, Lincoln, Lonoke, Saline. Present Member: Dr. C. Lewis Hyatt, Monticello, term expires December 31, 1967, eligible for reappointment.

A vacancy also occurs in the Member-at-Large position on the Arkansas State Board of Health. Members are urged to present their nominees for this position to their councilor district representatives on the Society Nominating Committee. Present member: Dr. D. W. Goldstein, Fort Smith, term expires December 31, 1967, eligible for reappointment.

Arkansas State Medical Board

A vacancy occurs in the Sixth Councilor District, the counties of which are listed below. Members from these counties are urged to meet in the Arlington Hotel immediately following adjournment of the House of Delegates meeting on Sunday, April 30, to vote for nominees. Nominations should be reported to the convention registration desk. Counties in District: Arkansas, Chicot, Cleveland, Dallas, Desha, Drew, Garland, Grant, Hot Spring, Jefferson, Lincoln, Lonoke, and Saline.

Present member: Dr. Frank Burton, Hot Springs, term expires December 31, 1967, eligible for reappointment.

Technical Exhibits

The business firms who purchase exhibit space at our Annual Session contribute a great deal to the financing, as well as to the educational aspects, of the meeting. The number of visits to the technical exhibits is the only criteria by which these companies can judge the value they receive from the investment in booth rental, displays, and employees' time. You will be rewarded for the time you spend visiting the exhibits. Following are descriptions of displays to be featured.

ORTHO PHARMACEUTICAL CORPORATION

On display at the Ortho exhibit is the most complete line of medically accepted products for the control of conception. Representatives on hand will be pleased to answer your questions concerning the latest developments in this field as well as our other products on display.

THE MEDIFAC COMPANY

American Metal Hi-Low Electric Examination Table. Complete information on financing up to six months, or leasing up to seven years.

RATHER, BEYER AND HARPER, AGENTS

At our booth we plan to have representatives present to discuss insurance programs. Not only will we have brochures and applications for the Group Income Protection and Overhead Expense Plans which we administer for the Society, but we will also have available records of the coverages of what each insured member has at that time. In addition, we will have brochures and information on many other group insurance plans which are available to your members for their comparisons.

THE STUART COMPANY

A cordial invitation is extended to all members and guests attending this meeting to visit the Stuart Company booth. Specially trained representatives will be in attendance to answer your questions on new products, developed in our modern laboratories, which have particular interest for the medical profession. Products featured are DIALOSE, DIALOSE PLUS, FERANCEE, MULVIDREN-F, MULVIDREN JUNIOR, MYLANTA, MYLICON, STUART PRENATAL.

WM. P. POYTHRESS & CO., INC.

The Poythress exhibit will feature Trocinate, a unique, direct-acting (musculotropic) antispasmodic drug, and the Mudrane combinations, established Poythress products for relief of bronchial asthma. Solfoton, Solfo-Serpine, Panalgescic and Synirin will also be featured. Your requests for literature and professional trial quantities are cordially invited.

ARKANSAS BLUE CROSS-BLUE SHIELD

Our booth is for your convenience and we welcome your visit. Blue Cross-Blue Shields representatives are always ready to help solve any case problem or answer your questions. Our association with the medical profession has been largely responsible for our growth in membership which now totals over 300,000—an achievement of which we should all be proud.

SCHERING CORPORATION

Schering Corporation invites you to visit their exhibit,

Booth Space No. 7, where their representatives will be available to discuss with you any questions you may have on VALISONE (TM), AFRIN®, ETRAFON®, CELESTONE®, SOLUSPAN®, TINACTIN®, GARAMYCIN® or any other Schering product.

A. H. ROBINS COMPANY

You are cordially invited to visit the Robins display and meet our representatives who will welcome the opportunity to discuss products of interest with you.

GEIGY PHARMACEUTICALS

Geigy Pharmaceuticals cordially invites members and guests of the Society to visit its exhibit. The exhibit features important new therapeutic developments in the management of cardiovascular disease as well as current concepts in the control of inflammation; hypertension and edema; depression; obesity, and other disorders, which may be discussed with representatives in attendance.

SANDOZ PHARMACEUTICALS

Sandoz Pharmaceuticals cordially invites you to visit our display at Booth No. 10, where we are featuring Mellaril, Sansert, Cafergot P-B, Fiorinal and Fiorinal with codeine. Any of our representatives in attendance will gladly answer questions about these and other Sandoz products.

CIBA PHARMACEUTICAL COMPANY

CIBA Professional Service Representatives will be pleased to discuss Ser-Ap-Es.

SMITH, KLINE AND FRENCH LABORATORIES

Representatives will be on hand to answer your specific questions and provide information on their products and services.

SMITH, MILLER AND PATCH, INC.

Smith, Miller and Patch, Inc., will appreciate the opportunity to discuss with you the latest clinical reports concerning LIPOFLAVONOID in vertigo associated with Meniere's disease and in dizziness in the older age group; VITRON-C, KONDREMUL and LIPOTRIAD; and ophthalmic products for conditions frequently encountered in general practice, including VASOCON-A.

ASTRA PHARMACEUTICAL PRODUCTS, INC.

Information and descriptive literature pertaining to Xylocaine® (lidocaine) and Citanest® (prilocaine) local and topical anesthetics, and iron preparations Astrafer® (dextriferron) for intravenous use and Jectofer® (iron sorbitex) for intramuscular administration will be available at the Astra booth presided over by our representative, Mr. William F. Weldon.

ELI LILLY AND COMPANY

You are cordially invited to visit the Lilly exhibit. Our sales representative in attendance will welcome your questions about Lilly products. You may be particularly interested in discussing KEFLIN® Sodium Cephalothin.

WM. T. STOVER, INC.

The Wm. T. Stover Co., Inc., Little Rock, Arkansas, enjoying its 27th year of service to the medical profession, will occupy Booth No. 19, which will be staffed by informed and qualified representatives—eager to welcome you and assist in any manner possible—as well as to show you the up-to-date developments in the medical and surgical industry.

MEAD JOHNSON LABORATORIES

The Mead Johnson Laboratories' exhibit has been arranged to give you the optimum in quick service and product information. To make your visit productive, specially trained representatives will be on duty to tell you about their products.

DABBS SULLIVAN, TRULOCK & COMPANY, INC.

Mr. Melvin Spear, Account Executive with Dabbs Sullivan, Trulock & Co., Inc., will exhibit pamphlets and brochures regarding investment securities. Included in this exhibit are Mutual Fund prospectus and associated literature. Mr. Spear is available to answer any of your questions.

KAY SURGICAL, INC.

Kay Surgical plans to exhibit new lines of physicians' examining equipment and Burdick's new electrocardiograph and diatherm equipment.

PARKE, DAVIS AND COMPANY

Medical service members of our staff will be in attendance at our booth to discuss Parke-Davis specialties which will be on display.

G. D. SEARLE & CO.

You are cordially invited to visit the Searle booth where our representatives will be happy to answer any questions regarding Searle Products of Research. Featured will be Ovulen for ovulation control and menstrual disturbances, and Flagyl, a potent, new trichomonocidal agent for trichomonal vaginitis, cervicitis, urethritis and prostatitis.

WINTHROP LABORATORIES

You are cordially invited to visit Winthrop Laboratories Booth No. 26 where the following products will be displayed: Windel-antacid liquid and tablets (hexitol-stabilized aluminum and magnesium hydroxides). Neutralizes 300 times its weight in gastric acid for fast and prolonged relief. —Isuprel (Brand of isoproterenol) Mistometer—NegGram (Brand of nalidixic acid).

WILLIAM H. RORER, INC.

William H. Rorer, Inc., takes great pride in exhibiting its fine pharmaceutical products at this convention. Our representatives will gladly discuss the merits of these products with you.

PFIZER LABORATORIES

The Pfizer Laboratories' display has been specifically arranged for your convenience and to give you the maximum in quick service and product information. To make your visit worthwhile, technically trained Medical Service Representatives will be on hand to discuss with you the latest developments in Pfizer research.

MERCK, SHARP & DOHME

The Merck, Sharp & Dohme exhibit has been designed to offer a contribution to your therapeutic armamentarium. Technically trained personnel are available to discuss the scope and variety of services offered to physicians.

E. R. SQUIBB & SONS

E. R. Squibb & Sons has long been a leader in development of new therapeutic agents for prevention and treatment of disease. The results of our diligent research are available to the Medical Profession in new products or improvements in products already marketed. At booth No. 32, we will be pleased to present up-to-date information on these advances for your consideration.

HERBERT COX OF LITTLE ROCK

The major effort of Herbert Cox Shoes, Inc., of Little Rock, has been concerned for many years with the maintenance of outstanding facilities and standards for the use of footwear in the wide range of medical application—from orthopedic, general surgery, and pediatrics, to rheumatology and obstetrics. The exhibit of Herbert Cox Shoes will cover these contingencies and will be attended by a senior staff member. We will also be displaying some of the new products in footwear therapy.

ABBOTT LABORATORIES

Abbott Laboratories invites you to visit our exhibit. Our representatives will be happy to answer any questions you may have concerning our leading products and new developments.

BRISTOL LABORATORIES

Exhibit features TEGOPEN (Sodium Cloxacillin Monohydrate). Unlike Penicillin V or G, TEGOPEN eradicates streptococci, pneumococci, staphylococci, and resistant staphylococci, and it is priced comparable to quality brands of Penicillin V and G. TEGOPEN is available in three dosage forms: 250 mg. capsules, oral solution, and 125 mg. pediatric capsules.

C. DeWITT LUKENS COMPANY

A complete and comprehensive line of surgical sutures including the latest innovations in packaging, needles and suture material.

THE COCA-COLA COMPANY

Ice cold Coca-Cola served through the courtesy and cooperation of the Coca-Cola Bottling Company of Hot Springs, Inc., and The Coca-Cola Company.

AYERST LABORATORIES

Ayerst Laboratories cordially invites you to visit our exhibit. Our representatives will be happy to answer your questions regarding Ayerst products.

BILL SHORT MOTOR COMPANY

Visit Booth No. 13 and view a Mercedes-Benz. Our representatives will be on hand to discuss the features of the automobile with you.

MOUNTAIN VALLEY MINERAL WATER COMPANY

Mountain Valley Mineral Water Company will have water coolers with Mountain Valley water at the coffee bar. Stop by for a drink of cool Mountain Valley water.

UPJOHN COMPANY

You are cordially invited to visit the Upjohn exhibit. Our sales representatives will be happy to discuss our products with you.

House of Delegates Business Affairs

The following reports are brought to the attention of individual members and the county medical societies. The items reported here represent those received in time for publication in advance of the meeting. All reports will be referred to reference committees and members are urged to attend the open hearings of the reference committees to express their views.

ANNUAL COMMITTEE REPORTS

Public Health Committee

Ben N. Saltzman, M.D., Chairman

The Committee on Public Health in itself has not acted except through the function of its sub-committees.

Sub-Committee on Rural Health

Ben N. Saltzman, M.D., Chairman

The committee on Rural Health has continued its liaison with the Rural Community Improvement Association and with the members of its advisory committees which include: The Arkansas Farm Bureau, The Agricultural Extension Service, The Arkansas Dental Association, The Women's Auxiliary to The Arkansas Medical Society, Blue Cross-Blue Shield, and the Extension Homemakers Association. The chairman was re-elected a vice president of the R.C.I. board and has served in both an active and an advisory capacity. He has spoken to many rural communities on the activities of the American Medical Association and the Arkansas Medical Society.

The chairman continues as chairman of the Council of Rural Health of the American Medical Association, and will preside at the National Rural Health Conference to be held in Charlotte, North Carolina, this spring.

Plans have been made for a meeting with the Arkansas Grange, later in the spring. Plans are also being made for another State Rural Health Conference. Matters of rural health have constantly been brought to the attention of the Advisory Committee. This committee stands ready to help in any aspect of medical care for the rural people of our state.

Sub-Committee on Aging

James M. Kalb, Sr., M.D., Chairman

In view of the fact that the "Medical Care of the Aged" has been taken over by the Federal Government through their Medicare Regulations,

the committee on "Aging" of the Arkansas Medical Society felt that it would serve no useful purpose for us to recommend a different program. We, therefore, recommend that we live with Medicare as best we can under the following regulations:

1. Each doctor decides for himself, or herself, whether they will participate in the Medicare program.
2. The type of participation of his or her choice, as to whether direct billing or assignment.
3. That no person who is in need of medical care be denied such care because of inability to pay for it.

Sub-Committee on Physical Fitness and School Health

J. W. Kennedy, M.D., Chairman

Two trips have been made to visit Mr. Burnett, Executive Secretary of the Arkansas Athletic Association in regard to establishing a standard physical examination form for all athletes at pre-college level. This means a physical form for junior high and high school athletes, especially for the beginning junior high football players, so that this record may be carried through to the college level. Also, this committee is attempting to establish school physicians and their names in each junior high and high school within the state, thus improving the liaison with this committee and the AMA sports committee.

It is hoped within the coming year that a clearer communication can be established with state athletic departments to finalize this program.

Sub-Committee on Mental Health

W. O. Young, M.D., Chairman

The Sub-Committee on Mental Health of the Arkansas Medical Society met a few weeks after they were appointed at the last annual meeting to consider our goals for this year. The Committee felt that the things they would be most interested in would be, one, continue to expand the postgraduate education program for the members of the State Society, two, continue with the study for a comprehensive mental health plan for the State of Arkansas, three, work with other groups in an attempt to increase the number of trained professionals in the mental health field within the State of Arkansas. The graduate training program, which has been operated primarily

through the Department of Psychiatry at the University of Arkansas Medical Center, has continued to expand. This year there has been an increased number of courses for physicians who were not in the field of psychiatry to discuss psychiatric problems and methods of dealing with patients. All of the courses have been well received and the participants have felt that they were very valuable to them. The physicians who have attended these courses have come not only from the field of general practice but also from various specialties within the profession. We have also continued the plan of offering programs to the various County Medical Societies on psychiatric problems either as a single program or as a series of seminars, which ever the society would prefer. We feel that there has been increased interest in this area.

Members of the Sub-Committee, together with the other members of the Arkansas Medical Society, have continued to work quite hard on the two studies on the problems of mental health and the problems of mental retardation in the State of Arkansas. Both of these studies were completed in the spring of 1966 and plans to meet the needs in these two areas were formulated. The Comprehensive Mental Health Plan was presented to the House of Delegates at the annual meeting in Hot Springs in 1966 for their information and again presented to the House of Delegates at the November meeting in Little Rock for their approval. The House of Delegates did approve this plan.

Since the early fall of 1966 there has been a Citizens Committee which includes members of the Sub-Committee on Mental Health, together with other interested citizens from various fields, to try to combine the plan for Comprehensive Mental Health with the plan for the Comprehensive Care of the Mentally Retarded. This group has met quite frequently during the fall and winter of 1966 and have been able to combine the plans in most respects. There still are some areas of conflict that have not been resolved but we hope that this will be accomplished soon and that the combined plan can be presented to the State Administration. It is our understanding that, if we get these plans combined in a satisfactory program and approved by the Administration, it may be taken up in a special session of the Legislature later this year.

The Committee feels that the Residency Training Programs at the University of Arkansas Medical Center, the Arkansas State Hospital and the

Fort Roots Veterans Administration Hospital have continued to improve. More members of the Society have become involved in these training programs. They are attracting more applications for residencies, and the directors of the program feel that they are continuing to make progress both in the number of residents trained and in the quality of the training. So far as we know there has been no improvement in the situation for the establishment for a school of social work, although there are various groups in the State who are still pressing for something to be done in this area. Also, little has been done to increase the number of trained clinical psychologists within the State.

The University of Arkansas Medical Center is considering the establishment of a separate clinic for the examination and diagnosis of children with neurological defects. This will certainly be very helpful in the overall program for the mentally retarded and the mentally ill, and will be involved in improved training for the residents not only in psychiatry but in neurology, pediatrics and medicine.

During the summer of 1966 a member of the State Society together with a member of the legal profession was asked to set up a committee to study the laws that apply to sexual offenders in Arkansas. Several members of your Sub-Committee were asked to serve on this Committee. The laws of various states were reviewed and suggested changes in the Arkansas laws and in the treatment of these offenders were made by this Committee. Their suggestions are to be submitted to the Legislative Committee that is reviewing the entire penal system of the State of Arkansas.

Your Committee feels that the State has certainly made progress during the past year in coping with the problems of mental health and mental retardation. It is evident from the things mentioned above, however, that many of the changes that are desirable will be brought about by increased public interest and concern about the problem. Also, many of these changes will require some legislative action. This situation again emphasizes the responsibility of every physician within the State. As citizens we should take the initiative in promoting the changes that we feel are advisable and necessary, and as physicians we should advise our patients about the importance of these changes and help stimulate some interest in these problems. It is certain that the ap-

proval and the support of each member of the Arkansas Medical Society will be necessary to accomplish our goals.

IMMUNIZATIONS SUB-COMMITTEE

Wilbur G. Lawson, M.D., Chairman

The Immunization Sub-Committee has continued to develop and mature the four-point program that we undertook when redesignated by the Council in 1965.

- (1) Physician education has been stimulated by the appearance of the Chairman and other members of the Committee at medical functions where current immunizations were discussed and encouraged. The Chairman represented the Society at the National Symposium on Immunization at Atlanta, Georgia, 17 October '66, and subsequently made a summary report to the Council. This report has been submitted for publication in the Journal.
- (2) Detailed revision and up-dating of immunization schedules was accomplished in counsel with the Arkansas State Department of Health, and a schedule designed that everyone could live with.
- (3) One of our most important projects was finally achieved in November when a mass mailing of the summarized immunization schedule on brightly designed, adhesive-backed placards to all practicing physicians and health units in the state of Arkansas. It is hoped that the placement of this placard on medical office refrigerators will serve as a constant reminder of the place of immunization in broad general patient care and an authoritative reference point to speed up efficiency for office procedures. We have had many grateful, complimentary, voluntary comments.
- (4) In addition to the approach to the physician, we have appeared in speaker positions at PTA meetings, Rotary Clubs and other civic groups in support of immunization. It is our plan to continue this program by programing appearances on the several noon-time interview type television shows that would blanket the state of Arkansas, using even the outlying stations across state-line that serve Arkansas' border communities. In these interviews, the public will be urged to ask that they and their children's charts be reviewed for up-

dating all procedures, on their next office visit.

We wish to promote the thought to all of our fellow physicians — that immunization is one of the major differences in organized scientific medicine and the cultists. We must carry out this highly personal protective chore to our trusting patients or pass over another portion of private medicine to mass governmental resources.

SUB-COMMITTEE ON TRAFFIC SAFETY

Louise Henry, M.D., Chairman

The Traffic Safety Committee met in April, 1966, and recommended the following which have since been adopted by the House of Delegates.

1. That a mandatory driver education program be established in the schools. (Two schools in the State now have such a program.)
2. That we encourage the establishment of a State program of compulsory vehicle inspection. (State will be required to set up such a program by December 1967 or lose 25% federal funds.)
3. That ambulances be required to obey all local speed limits and observe all traffic signals.
4. That all who are employed as ambulance attendants be required to have completed at least the Red Cross standard first aid course. (requiring 16 hours)

State traffic officers attending the meeting emphasized the need for State wide high school driver education. Sixteen mobile units equipped with simulated driving are in constant operation at schools throughout the state. Sixteen additional units are needed, we were told.

Last summer three state colleges gave instruction courses for teachers in the operation of the mobile units. Members of this committee have spoken before P.T.A. and civic groups on traffic safety. Dr. Richard Clark presented a safety program on television.

Instruction courses for ambulance attendants, police, and others, in proper handling of the injured was given in Fayetteville by committee member, Dr. Warren Murry.

COMMITTEE ON MEDICAL EDUCATION

Lee Parker, Jr., M.D., Chairman

The past year has seen a great deal of activity in the field of medical education both nationally and in our state.

Nationally, more and more attention is being

directed toward medical education, both at the undergraduate and especially the postgraduate level. Three separate groups have issued reports of studies of the field of general practice and its future including its scope and the training of its members. It appears that a formal Board of General (family) Practice is only a matter of time. A lot of attention is also being given to the problem of "Maintaining proficiency" in all physicians after graduation.

Locally, medical education activities have been considerable also.

In post graduate education more than 200 hours of formal postgraduate seminars were presented in 1966 by the University of Arkansas, Academy of General Practice, etc., at many sites over the state. The University has instituted several innovations this year. A correspondence course in pediatrics was established. Special seminars in Medicine and Pediatrics were begun, with hospital ward rounds plus case discussions taking the place of formal lectures. Special classes in psychiatry for the private physician have also been established.

The University has issued a special report suggesting a change in admission policy toward non-resident students in an effort to graduate more physicians. This will likely have been decided by the state legislature prior to our annual society meeting.

The Heart, Cancer and Stroke program is getting underway this year. A planning program of 1-3 years is envisioned to study the needs and requirements of the State, after which an operational program will be established. This information is included in this report since at the present time education will likely be a major part of the program.

Lastly, the chairman would like to express his thanks to the Society for the opportunity to serve, to the committee members who took the time and effort to actively serve, and to the Post-Graduate Education Department of the Medical Center and especially Dean Shorey and Dr. Fisher who have worked to improve the quality and quantity of their post graduate seminars. To Dr. Calvin Dillaba, the new chairman of this committee, I offer whatever assistance that he might ask of me.

SUB-COMMITTEE ON POSTGRADUATE EDUCATION

George F. Wynne, M.D., Chairman

This Committee met June 14, 1966, at the University of Arkansas Medical School, Little Rock, Arkansas, with the following members present—George F. Wynne, Eli Gary, and James Taylor.

This Committee met with similar committees from the Faculty of the Medical School and from the Arkansas Academy of General Practitioners.

The Committee has high praise for the excellent work the faculty of our medical school has done in the past year in providing these splendid post graduate courses and seminars.

Our Committee wishes to admonish the members of the Arkansas Medical Society for their lack of interest in these courses, which has been exemplified by a fall in attendance. It is hoped that more interest is shown in our Post Graduate Education in the coming year.

The approved program for 1966-67 is as follows:
Sept. 29, 1966—Current Problems in Respiratory Disease, U.A.M.C. Auditorium, Little Rock, Ark.

Nov. 17, 1966—Hypertension and Renal Disease, U.A.M.C. Auditorium, Little Rock, Ark.

Jan. 19, 1967—Obstetric, Gynecology Symposium, U.A.M.C. Auditorium, Little Rock, Ark.

Feb. 24 and 25—Current Trends in Dermatology, Hot Springs, Ark.

Mar. 17 and 18—General Surgery Symposium, Department of Surgery, Hot Springs, Ark.

Apr. 20, 1967—Orthopedic Aspect of Rheumatoid Arthritis, U.A.M.C. Auditorium, Little Rock, Ark.

The Seminar courses are as follows:

Psychiatry Seminar—Basic Course, Sept. 1966-Mar. 1967 (Two Thursday meetings monthly for six months) Enrollment limited to 10.

Psychiatry Seminar—Advanced Course, beginning September 1966.

Post Graduate Medicine Seminar—Oct. 1966-Feb. 1967 (Two Saturday meetings monthly, 11:00 A.M. to 1:00 P.M.) Enrollment limited to 12.

Pediatric Seminar—Oct. 1966-Feb. 1967 (Two Saturday meetings monthly 9:00 A.M. to 11:00 A.M.) Enrollment limited to 12.

The Correspondence courses are as follows:

General Pediatric Diagnosis and Management, October 1966-May 1967.

Individual program announcements will be mailed four weeks prior to the date of these

courses and a second mailing ten days prior to the course. The fees for these courses have been set as \$25.00 for single day programs and \$40.00 for two day programs. The Seminar courses will have individual fees and information concerning these can be obtained from the various departments of the Medical School conducting the course.

Your Committee in closing this report is pleased to announce that all post graduate courses have been registered and approved by the American Medical Association and they are listed in their official listing of Post Graduate approved courses.

Sub-Committee on Liaison With the Auxiliary

Joseph A. Norton, M.D., Chairman

As Chairman of the Subcommittee on Liaison with the Medical Auxiliary, I consulted with the President, Mrs. John McCollough Smith, on several occasions, and was able to attend at least one Major Board Meeting of the group.

There was very little other duty placed upon me. It was a pleasure to review the work of the Auxiliary and to give encouragement to its efforts. I believe the full report of the Auxiliary will be found elsewhere in this journal. Please take the time to read these considerable efforts.

I am firmly convinced the Auxiliary is perhaps the main right arm of the Arkansas Medical Society. These women, with their energy, ambition and initiative, can do for us much that we are unable to do on our own. I hope that every encouragement will be given locally to their activities. I hope that all wives will be encouraged to join the Auxiliary.

On behalf of the entire Medical Society, let me express our gratitude to the Auxiliary and its officers for its continued fine efforts.

Sub-Committee on State Health and Medical Resources for Civil Defense

Monroe D. McCloin, M.D., Chairman

The subcommittee on Disaster has had very little activity. However, I would like to ask:

1. Will anyone express themselves as to whether we need a subcommittee on disaster?
2. Any suggestions as to functions.
3. How many of you know what your local plan is as to:
 - a. medical coverage
 - b. transportation
 - c. communication

- d. where medical supplies are located
- e. how to get them

4. What other agencies do you think are supposed to help?
5. What other agencies do you think will help you?
6. Do you know many paramedical personnel in your area including: dentists, veterinarians, good common sense helpers, etc. and how would you find them in case of disaster?

Where are: Shelters; food supplies; what radios, if any.

If any scintillators available.

If anyone is not too apathetic, would you please forward any communications to: Mr. Paul C. Schaefer, Executive Vice President, so they may be consolidated.

ANNUAL SESSION COMMITTEE

A. S. Koenig, M.D., Chairman

The convention program arranged by the Annual Session Committee appears in another section of this issue of the Journal.

COMMITTEE ON INSURANCE

Thomas D. Honeycult, M.D., Chairman

Your Insurance Committee continues supervision of three types of Insurance Programs which have been in operation for several years.

The group life insurance plan, underwritten by Northwestern National Life Insurance Company and served by Myer F. Marks, Little Rock, continues to improve and up-date its coverage at periodic intervals, the most recent innovation was inaugurated in 1966 in which rates were reduced for all members under age fifty and opening of enrollment for additional \$10,000 on a guaranteed-issue basis. Currently a member may have as much as \$30,000 in insurance on a group basis with this company.

Dividends are being increased as of August 1, 1967 to a 9.3% of the members premiums.

Death benefits paid in 1966 amounted to \$52,500. All members of the Arkansas Medical Society should realize that these death benefits were paid to many physicians who were unable to obtain insurance at standard rates.

The Professional Liability Program underwritten by the St. Paul Insurance Companies and serviced by Mr. Edgar J. Hodge, Little Rock, has not had as good participation as has been hoped for. This program has been in effect approxi-

mately three years and at the present time 197 physicians out of a total active membership of 1,260 are enrolled with this company.

The professional liability insurance rates are controlled by the company or companies who are writing most of the business and in Arkansas the Bureau Companies have predominated in setting the rate. St. Paul with its three years of experience has approached the Insurance Department with a proposed rate reduction in view of their relatively good loss ratio. In 1966, \$144,272 in premiums were collected and the loss ratio was calculated to be 33.8%. At the present time St. Paul only has three claims outstanding totaling \$30,000. The Bureau Companies effected a rate increase June 1, 1966; St. Paul did not take advantage of this increase and at the present time there is a differential between the Bureau Companies and St. Paul rates amounting to \$4.00 for a class-one physician, and \$34.00 differential for a class-four physician based on 5-15,000 limit policy. Physicians are now classed as Class I, General Practitioners and Specialist who do not perform obstetrical procedures or surgery; Class II, General Practitioners and Specialists who perform minor surgery including obstetrical procedures not constituting major surgery; Class III, General Practitioners who perform major surgery, Anesthesiologists, Ophthalmologists and Proctologists; Class IV, Cardiac Surgeons, Neurosurgeons, Ob-Gyn Specialists, Orthopedists, etc.

The St. Paul Company would welcome an opportunity to talk with members who might be interested in changing their present coverage.

The Group Disability Insurance plan has been in force the longest of all the insurance plans getting started some 12 to 14 years ago and since that time being administered by Rather, Beyer & Harper Insurance Company, Little Rock, Arkansas. At the present time there are 376 group disability policies in force with 42 claimants receiving a total of 111 payments during the year amounting to \$46,942.78. There was a gain in the number of physicians participating in this insurance during 1966.

Another form of disability insurance was inaugurated some 6-7 years ago. This is called the Professional Overhead Expense Insurance which currently has 105 policies in force. There were 4 claims made for this type insurance during the year amounting to \$3,432.26.

In the fall of 1966 the overhead expense plan was re-solicited and obtained 26 new policies.

This company has continued to stay abreast of the needs of the physicians and has tried to update their policies in keeping with the newer trends in these type insurance plans.

Sub-Committee on Liaison With the Nursing Profession

W. Myers Smith, M.D., Chairman

The committee as a whole met once after a telephone conference. The meeting was stimulated by the proposed new nurse practice act and the different viewpoints of the R.N.'s and the L.P.N.'s. This committee fully understood that the legislative and action aspects of the problem had been referred by the House of Delegates to the Legislative Committee, and the Chairman had consulted with Dr. Shuffield. The State Hospital Association had already had an unsuccessful meeting attempting to mediate the differences between the two groups of nurses. However, it was informally understood that a compromise had been reached between the respective legal counsels and a substitute compromise bill was ready, although the R.N.'s still proposed to have their original bill introduced first. Mrs. Goss, the President of the State Nurses' Association, discussed the need for a new act and some of its long and short range intentions. Mrs. Tucker, with two assistants representing the L.P.N.'s, discussed their objections and fears of the proposed legislation. The committee in closed session agreed on the following principles:

1. All nursing should be under mandatory licensure.
2. All nursing should be under one State Board.
3. L.P.N.'s should be represented on the Board.
4. While the majority of the membership should be 4 years "degree" R.N.'s, 2 and 3 year "diploma" R.N.'s should not be excluded.
5. The Committee hopes that no legislation on this subject will be enacted hurriedly — that plenty of time will be allowed for study.

Following a suggestion by the Secretary of the State Medical Society, two members of the Committee met with a doctor from Hot Springs to learn the details of organization of the L.P.N. schools there. Primarily it consisted of establishment of the school under the Department of Education, thus allowing use of federal funds. The chief nurse from the State Department of Educa-

tion reported that there were approximately 16 such schools over the state and only 3 private hospital schools.

The Chairman has met repeatedly with groups of nurses at the Arkansas League of Nurses to plan their post graduate training programs and is being requested to meet with other groups on better use of nurses' time and talents.

COMMITTEE ON MEDICINE AND RELIGION

Joseph A. Norton, M.D., Chairman

The principle activity of this committee during 1966 was the presentation of a program in the auditorium in the University Medical Center in Little Rock in the early summer. This program featured an address by the Rev. William Fogelman of the Second Presbyterian Church in Little Rock, Arkansas, entitled "The Image Obstacle". There was discussion of this paper. The paper itself was printed later in the Journal of the Arkansas Medical Society. There was considerable response to the facts and opinions presented in the paper. The meeting further went on to present panel discussions of case reports drawn from the Social Service files at the University Medical Center, varied, showing areas of cooperation between the clergy and the Social Service Department and physicians, and showing also areas where needed coordination and cooperation was not apparent. It was a very successful meeting.

It is the hope that in the future similar meetings can be conducted not only in Little Rock but over the State. If there is desire on the part of County Medical Society offices for such a program, please contact the Committee on Medicine and Religion or the Headquarters of the Arkansas Medical Society in Fort Smith. Programs are prepared and ready at this time.

In January of 1967, a survey was sent over the state to each county organization, to determine the degree of activity in the field of medicine and religion, and to see if there was desire for further help. The results of this survey will be published later.

Dr. Jerome Levy has agreed to be chairman of this committee in 1967. The outgoing chairman and Dr. Levy will both attend an AMA meeting on medicine and religion in February 1967, in preparation for the coming year.

We would call your attention to the fact that there is activity from the department of medicine and religion at practically every AMA National

meeting. Please avail yourselves of these opportunities when you go to the AMA meetings.

COMMITTEE ON CONSTITUTIONAL REVISION

C. R. Ellis, M.D., Chairman

The Constitutional Revisions Committee has proposed changes in the By-Laws to provide for provisional membership. The proposal would amend only Chapter I of the By-Laws (Membership). Section 1 is amended, Section 2 and 3 would remain unchanged, and Section 4, 5, 6, and 7 would be deleted.

BY-LAWS

CHAPTER I MEMBERSHIP

Section I

a. The name of a physician on the properly certified roster of members of component Society which has paid its annual assessment, shall be prima facie evidence of eligibility for the same classification of membership in this society.

b. Classification and description of types of membership in this society.

Membership in this society (Arkansas Medical Society) shall consist of the following classifications:

1. Provisional Member—To become an active member in this society, any physician meeting the qualifications as set forth in Chapter I, Section I (b) (2) of these By-Laws shall first serve a period of not less than twelve (12) months as a provisional member of this society. During the period of provisional membership, the member may serve on appointed committees but may not have the right to hold office, to vote, to endorse applications for membership, or to serve as a delegate or alternate delegate.

During the period of provisional membership, the member must attend at least one orientation course offered by this society or offered by a component society and approved by this society. Prior to becoming an active (regular) member of this society, the provisional member must be considered by an elected board or committee (hereinafter called Board of Censors) of his component society and duly elected to regular membership as required by the Constitution and By-Laws of his component society.

a. If, at the end of the provisional period, the provisional member fails to be elected to

regular membership, the Board of Censors of said component county medical society will provide counsel directed toward rehabilitation of the rejected physician. The rejected physician may also request the Board of Censors to recommend to the society a further period of provisional membership; and it *may* be granted, the time at which it may begin and the duration of the additional provisional period to be stipulated by the Board of Censors in its recommendation in each individual case, though it *may not exceed a period of one year* from the date of rejection by the county society. At the end of this additional period of provisional membership, the candidate will again be considered by the Board of Censors, who will place his name before the county society again with recommendation as to acceptance or rejection. If the provisional member fails to be elected to regular membership after the second provisional period, he may not again apply for provisional membership in any component county society until one year has elapsed after the second rejection by the society or upon appeal to the Council of the State Medical Society as provided in Section 7, Chapter IX of these By-Laws.

Qualifying orientation programs shall be offered at the time and place of the Annual Session of the Arkansas Medical Society and at one other time as set by the Council during each year.

Intern membership, resident membership and military membership shall not be considered as a substitute for any part of the twelve (12) months of provisional membership.

Any provisional member accepted on transfer from another component county medical society shall continue as a provisional member the full twelve (12) months as outlined above before being considered for regular membership.

2. Regular Member

A regular member of this society shall have the following qualifications:

- a. Possess the degree of Doctor of Medicine, issued by a medical school, which, at the time such degree was conferred, was approved by the Council on Medical Educa-

- tion of the American Medical Association;
- b. Hold an un-revoked license to practice medicine and surgery issued by the Board of Medical Examiners which consists of members recommended by this society;
- c. Has satisfactorily served at least twelve months as a provisional member of this society.
- d. The eligibility requirements as set forth in the preceding sentences are not to apply, however, to members in good standing in any component society at the time of the adoption of this section (adopted, House of Delegates, 1937 Annual Session).

3. Life Member

A regular member who shall have attained his eightieth year and shall have been a member of his county medical society in Arkansas or elsewhere in the United States continuously since beginning the practice of medicine, or who for fifty years shall have been continuously a member of his county medical society in Arkansas or elsewhere in the United States, shall, upon establishing the above facts to the satisfaction of his county medical society, and upon the recommendation of such society, be granted the status of a Life Member. Such member shall enjoy full membership privileges and shall be exempt from the payment of further dues or assessments.

4. Affiliate Member

A regular member in good standing in his county society may, upon the recommendation of such society, be granted affiliate membership with full voting and other privileges where one or more of the following conditions exist: retirement from active practice, physical or other disability of a character preventing the practice of medicine, a serious and prolonged illness, or financial reverses. Affiliate membership shall be on an annual basis only and a member must be recommended each year for such special status by the secretary and president of his county medical society following a review and reassessment of his particular situation. An affiliate member shall enjoy full membership privileges and shall be exempt from the payment of dues and assessments during the year in which he is granted such status, and a certificate of membership shall be issued to him

for such year.

5. Affiliate Member—as Intern or Resident

An annual affiliate membership shall be granted interns and residents, provided they are fully or partially excused from the payment of county society dues, and provided the request for exemption is transmitted through a component society of the Arkansas Medical Society. The requirement for active membership prior to exemption shall be waived for such affiliate members. This type of member shall be accorded full privileges except that he may not vote or hold office, and he shall receive the Journal of the Arkansas Medical Society.

6. Affiliate Member—Military

A regular member of this society who is in the service of the United States, not as a career officer, may be classified as a military member, and carried on the roll of his respective county society as such. Military members shall have a waiver of dues during the time of service, provided they are in good standing at the time they entered the armed forces. Military members shall enjoy full membership privileges and certificates of membership shall be issued to them for each year.

BUDGET COMMITTEE

W. R. Brooksher, M.D., Chairman

The Budget Committee submits the following proposed budget for 1967:

INCOME

Budget Item	1967 Estimate
Membership Dues	\$ 90,060.00
Journal Advertising	
Local	\$ 5,300.00
National	25,000.00
	30,300.00
Booth Income	6,745.00
Annual Session Income	1,400.00
AMA Reimbursement	500.00
Income from Medicare	22,416.00
Interest on Government Securities	4,090.00
Miscellaneous and Rosters	250.00
Retirement	338.00

	\$156,099.00

EXPENSE

Salaries	
Medicare	\$11,998.00

Journal	11,825.00	
AMS	24,689.00	
		48,512.00
Travel and Convention		10,000.00
Taxes		
Medicare	500.00	
AMS	700.00	
		1,200.00
Retirement		
Medicare	967.00	
AMS	4,794.00	
		5,761.00
Stationery & Printing		
Medicare	900.00	
AMS	1,400.00	
		2,300.00
Office Supplies & Expense		
Medicare	2,000.00	
AMS	2,000.00	
		4,000.00
Telephone & Telegraph		
Medicare	600.00	
AMS	2,000.00	
		2,600.00
Rent		
Medicare	854.00	
AMS	1,282.00	
		2,136.00
Postage		
Medicare	1,000.00	
AMS	2,900.00	
		3,900.00
Insurance & Bonds		
Medicare	430.00	
AMS	1,273.00	
		1,703.00
Auditing		
Medicare	475.00	
AMS	300.00	
		775.00
Council		900.00
Journal Printing & Expense		28,000.00
Annual Session		7,800.00
Senior Medical Day		500.00
Public Relations		500.00
Dues and Subscriptions		1,800.00
Contributions and Gifts		1,850.00
Woman's Auxiliary		1,200.00
Legal Service		5,300.00
Special Committee		1,000.00
(Officers Conference)		
Rural Health		500.00

Miscellaneous	400.00
Freight and Express	65.00
Office Equipment	4,489.00

	\$137,191.00

REPORT OF THE MEDICARE FEE COMMITTEE

C. C. Long, M.D., Chairman

Late in 1965, the Society headquarters in Fort Smith began receiving complaints about the fees for the Military Dependents' Medical Care Program from the fields of Otolaryngology and Psychiatry. It was decided that in view of increasing costs, a general increase in all Medicare fees was indicated, and should be requested from the Office for Dependents' Medical Care. Individual physicians were advised by the Society office that they should contact their specialty representative on the Fee Schedule Committee regarding a revision of the fee schedule. The matter was discussed by the Council of the Arkansas Medical Society in January of 1966 and it was voted to refer negotiations on the renewal of the government contract to the Medicare Fee Negotiating Committee headed by Dr. James Kolb and myself.

When the Military Medicare Program began in 1956, the Arkansas fee schedule was based on the California Relative Value Scale with a \$5 unit value for Medicine, Radiology, Pathology, and a \$4.65 unit value for surgery. The fees were reduced by Military Medicine officials in 1958 and again in 1960. Except for a few minor increases, the 1960 fee schedule remains in effect. The average unit value for the procedures at present is \$3.69.

A mimeograph form was prepared which included all Medicare codes, the relative value for each as listed in the 1964 California Relative Value Scale, the 1956 Military Medicare Fee Schedule, and the present Military Medicare fee schedule. This was distributed to all committee members for use in preparing a fee proposal. On October 31, 1966, a meeting of the full committee was held in Little Rock. With the exception of Pediatrics and Urology, all specialty groups represented on the committee presented proposals regarding revisions of the fee schedule. In view of the considerable range in conversion factors requested by the various specialty groups, and the desire of some groups to use "usual and customary" billing, it was decided to ask officials of the Military Medicare Program to meet with the

entire committee.

On January 22nd, the entire committee met in Little Rock with officials of the Military Medicare Program—General Norman Peatfield, Executive Director, and Colonel William Hayes, Contracting Officer. Representatives of the various specialty groups indicated the conversion factors applicable to the 1964 California Relative Value Scale which their specialties considered acceptable.

Following a general discussion period and luncheon with the entire committee and Medicare officials, a smaller group met with the Medicare officials to work out an agreement on the fee schedule. Present at the afternoon session were: General Peatfield, Colonel Hayes, Dr. Long, Dr. Kolb, Dr. Shuffield, Dr. Brizzolara, Dr. Koenig, Mr. Schaefer, and Miss Richmond.

The Committee and Medicare officials agreed on payment of physicians' claims under the Military Medicare Program in Arkansas on the basis of usual and customary fees, with only those fees in excess of a set level to be subject to review prior to payment. The level of review will be established by applying a conversion factor to the current relative value scale of the California Medical Association. In the event that any section's fees are in excess of the review level for any period of time, the review level will be adjusted by renegotiation with Medicare officials. The post-operative follow-up care period will be adjusted for Orthopedics Neurosurgery in accordance with recommendations of those section representatives. Anesthesiology claims will be paid on the "base plus time" concept of the California Relative Value Scale, with anesthesia materials to be paid additionally. Pathology and Radiology will be adjusted to comply with existing billing practices. Any fees presently set in amounts greater than that arrived at by use of the conversion factor to establish the review level will not be subject to review before payment.

This tentative agreement was submitted to the Council of the Arkansas Medical Society on February 12, 1967, and the agreement was approved as presented.

LONG RANGE PLANNING COMMITTEE FOR THE MEDICAL CENTER

Thomas H. Wortham, M.D., Chairman

This committee is relatively new as Medical Society Committees go, having been formed in 1965 by the Council and Dr. C. Randolph Ellis

to meet an acute need of the Medical Center.

Committee members are: Dr. T. H. Wortham, Chairman

Dr. Glen Baker, Jonesboro

Dr. Robert Benafield, Conway

Dr. Lee Parker, McGehee

Dr. Berry Moore, El Dorado

Dr. R. M. Bransford, Texarkana

Dr. Martin Eisele, Hot Springs

Dr. George Mitchell, Little Rock

Dr. Art Moore, Fayetteville

Dr. Neil Crow, Ft. Smith

This is probably the most misnamed committee of the Arkansas Medical Society. We were activated to help solve a crisis but planned to study and help with long range programs. But our committee is like a marriage—we have so many short range problems that the long range just gets lost.

What the committee has done:

In the legislative session of 1965 we were asked to (1) Help restore a drastic cut in the Medical Center budget (2) Help get the Medical Center Hospital air conditioned (3) Help get some private-care beds opened to allow your referral of problem cases (4) Try to obtain an "operational fund" to keep the center out of the red.

Through the committee and the doctors of the State adequate pressure was brought to bare to obtain these goals. But I point out again that these were acute needs—not long range planning.

Since the last legislative Session several meetings have been held. The most promising to me and I believe to you is a committee appointed by the Dean to prepare the Center for referral practice. Nothing aggravates the private doctors like "no beds". Poor public relations by the staff of the Center and sometimes downright rudeness by the housestaff is unbelievable by the L.M.D. who is used to favored treatment by his fellow practitioners. Prompt letters to the referring doctors of all findings are needed.

I must say that all the above is not solved but I know progress is being made. I see it in my practice and I know the Dean is committed to continue this plan to the end that referral to the U of A Medical Center will be a pleasure rather than a chore. This will benefit the doctors and patients of the state.

I would love to show you today:

1. Plans for a new outpatient clinic
2. Plans for a new Pediatric hospital
3. Plans for a new Rehabilitation Center
4. Plans for a new outpatient motel
5. Plans for a faculty building
6. Plans for a new library
7. Plans for an enlarged research building

but I'd feel better about the Center if I was sure it could pay all its bills during the next Biennium.

The Medical Center is chronically under-financed. When you have to be very careful with January's money or in June you'll be broke, there isn't much incentive for planning. And so here we are with a new legislative session ahead. Every indication is that all budgets will be sliced where the Center's was already autopsied by the Commission on Higher Education Finance.

To demonstrate the problems I asked Mr. Storm Whaley, Vice President for Health Sciences of the University of Arkansas Medical Center to brief us.

(Mr. Whaley reviewed the request for increased budget for the Medical Center and related the cuts by the Commission on Higher Education finance. The budget was to add only wage increases to match the rise in cost of living. Some new salary positions for the Medical School are included. No new programs were approved but may be investigated when the state's financial structure becomes more apparent.)

Another problem which we consider acute and will ask the legislature for a solution is the student failure rate at the Medical School. Dean Shorey will give us insight in this area. (Dean Winston Shorey pointed out the rules for admission to the University of Arkansas Medical School which requires Arkansas residency. It was shown statistically that the Medical School is accepting 15 to 20 borderline students each year and these students are doing poorly with attrition rate one of the highest in the United States. It costs the State of Arkansas \$6,000 to \$7,000 per student and at this rate \$150,000 to \$175,000 is being lost per year in these students who fail. The Medical Center is proposing to the legislature that the law be relaxed so that a very limited number of outstanding out-of-state students be admitted to the Center. The Medical Society has gone on record as being in favor of this legislation and the Dean

requested the doctors' influence to obtain passage of this bill.)

Our Committee is at your service. We enlist your suggestions and thank you for previous ideas and comments. We request your aid and help during the next legislative session. I know that you will agree that we want only the best at our Medical Center for the future of medical practice in Arkansas.

MEDICAL ADVISORY COMMITTEE TO THE SELECTIVE SERVICE SYSTEM

Gerald H. Teasley, M.D., Chairman

The Medical Advisory Committee to Selective Service System has met twice during the past twelve months—Once, during the regular session of the Arkansas Medical Society Meeting and again at the mid-winter meeting.

There are no calls at the present time pending for physicians to be called to active duty. This, of course, might change in the future, but at present no activity is contemplated. Investigations are carried out when the need for them arises. It is hoped that our activities will continue to be light and no further calls will be indicated.

ADDENDUM

Since the above report was written, we have received word that more than 2,000 physicians will be drafted in the next selective service call. The number which may be requested from Arkansas is not known. It may or may not affect the activities of the Arkansas State Advisory Committee to the Selective Service System.

21-MAN COMMITTEE

C. C. Long, M.D., Chairman

This report is on the 21-Man Committee, having to do with the over-age-65 Medicare Law. This committee has had four meetings. The first being March 6, 1966, at which time a review of the purpose of the committee was given. The organization of the committee as to future meetings was discussed and the format of the survey to be conducted regarding usual and customary fees for the physicians in Arkansas was discussed and approved.

The second committee meeting was held on April 24, 1966, at which time Blue Cross gave a report that approximately one-third of the survey

forms had been returned of the 1,500 that had been sent out. The committee further discussed the methods and procedures to be used in specific fields of Pathology and Radiology. It was decided to postpone this action until a further time until more definite information could be obtained from the HEW concerning the hospital-based specialists and the methods by which their billing could be handled. Also, at this meeting, the claim form that was to be used in billing for Medicare services was discussed and explained, in detail, to the committee group with instructions that they were to spread this information to their colleagues, and to help them understand the problems involved with this form.

The third meeting of the committee with Blue Cross was held on June 12, 1966, at which time a report was made on the results of a pilot study in two counties where the surveys of the physicians had been reviewed. It was found that, with very few exceptions, the fees listed by the physicians in the counties fell within what could be considered to be reasonable and customary. It was determined that in those few instances where the fees were outside the generally acceptable, reasonable and customary range for this community, that the Blue Cross representative would check with the doctor to see if some adjustment could be arrived at. It was stated that if the physician wished to charge fees outside the usual and customary that he could do so, as long as he did not accept an assignment and that the patient would be reimbursed at the usual and customary fee in that community.

The last meeting of the committee was held on January 15, 1967, at which time the Blue Cross—Blue Shield representative reported to the 21-Man Committee the progress that had been made. He stated that, at the Miami meeting of Blue Cross and Blue Shield plans, Arkansas was one of the leading states in handling the Medicare Part "B" claims. They further stated that approximately 60 per cent of the physicians in Arkansas were accepting assignments. That in Arkansas only 6 per cent of the total claims received were returned for correction where the national average was approximately 10 per cent. In many of the other states the percentage of claims accepting assignments were in the range of 20 to 30 per cent rather than the 60 per cent as seen in Arkansas.

At this meeting it was stated that in Arkansas

the Blue Cross—Blue Shield was starting a series of workshops over the state to acquaint physicians' secretaries with handling and filing of claims. The representative informed the committee also that the Blue Cross-Blue Shield had prepared a Physicians' Medicare Manual which would be given to every physician in the state, including instructions and information for completing forms. Further discussion was held regarding the possible changes that the present Congress was considering, regarding the Medicare Law in which the deductibles and coinsurance feature would be removed, the waiting period and deadline enrollment period would be eliminated and that fees for drugs and appliances would be included. Following this discussion the meeting adjourned.

It was suggested by the chairman of this committee that the committee as a whole has functioned very well; they have attended meetings with regularity. My personal feeling is that we have had a relatively minor part to play in the formation of the Medicare program. However, our cooperation from Blue Cross-Blue Shield has been excellent, in so far as it was possible for them to seek our advice and counsel. I further recommend that the formation of the 5-Man Committee as previously set up in the original agreement, should be implemented in the immediate future. As problems arise concerning individual questions in regard to claims and grievances, it would be much more feasible for five men to meet, than the 21-man group to meet and attempt to reach a decision on these problems. However, I feel that the 21-Man Committee should remain intact and should be available on a call basis to discuss major problems that might arise.

SECOND COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

M. C. Hawkins, Jr., M.D., Chairman

The committee has satisfactorily resolved a number of "special reports" cases under the Military Medicare Program, as submitted by physicians in this district. There has been no other activity of the committee during the year.

FOURTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Sanford C. Manrae, M.D., Chairman

During the year 1966, the Committee of this

District had only four cases presented to it for adjudication in regard to fees paid under The Military Dependents Medical Care Plan.

All cases were acted upon with the unanimous agreement of the members of the Committee. It was not necessary for the Committee to meet in person as all cases were handled by correspondence. The Committee was not informed of any dissatisfaction on the part of the physician whose fee was in question.

SIXTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Paul Hughes, M.D., Chairman

I am happy to report that there have not been any problems of any consequence referred to the Professional Relations Committee of the Sixth Councilor District during the past year.

EIGHTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Richard M. Laugue, M.D., Chairman

The Committee has met at appropriate intervals during the year 1966 and has reviewed, evaluated, and made recommendations on 106 Medicare files.

There has been no call for official action by the committee in complaints against individual physicians. Informal advice has been rendered on several occasions apropos cases not falling strictly within the jurisdiction of this committee.

NINTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Rass Fawler, M.D., Chairman

The Ninth Councilor Physicians' Relations Committee took care of one patient-physician Grievance and several special Medicare Reports during the past year.

This is all to come before this Committee.

REPORT OF THE ARKANSAS STATE MEDICAL BOARD

(January 1, 1966-January 1, 1967)

Jae Verser, M.D., Secretary

The Secretary of the Arkansas State Medical Board makes the following report of the activities of this Board since the last meeting of the Arkansas Medical Society:

The officers and members are as follows:

Wm. A. Snodgrass, Jr., M.D., Chairman
 J. F. Guenther, M.D., Vice-Chairman
 Joe Verser, M.D., Secretary-Treasurer
 Frank M. Burton, M.D.
 Hugh R. Edwards, M.D.
 Earle D. McKelvey, M.D.
 Ross Fowler, M.D.
 George F. Wynne, M.D.
 C. Stanley Applegate, M.D.
 Eugene R. Warren, Attorney

The Board investigated every case of violation of the Medical Practice Act reported to the Secretary during the year. No court convictions were obtained, but one case is pending. Seven injunctions were issued. The Board revoked the licenses of four physicians and placed one physician on probation.

A yearly financial report of the Board's activities, prepared by Johnston, Freeman & Company, Certified Public Accountants, was sent to and approved by the Council of the Arkansas Medical Society.

Following is a report of the Board's proceedings during the past year:

Physicians registered for 1966:

Resident.....	1,760
Non-Resident	1,088
Physicians licensed by examination	79
Physicians licensed by reciprocity	28
Physicians certified to other states	94
Licenses revoked for non-payment of annual registration fee.....	17
Licenses suspended for non-payment of annual registration fee	19
Court convictions obtained	0
Cases pending	1
Injunctions issued	7
Physicians placed on probation	1

FINANCIAL REPORT

January 1, 1966-January 1, 1967

Cash balance in bank—January 1, 1966 \$	5,959.42
Time deposits	21,930.04
	<u>27,889.46</u>

RECEIPTS:

Registration fees	7,956.00
Certification fees	1,435.00
Reciprocity fees	3,200.00
Examination fees	4,100.00
Directories	643.84
Physical Therapy fees and dues	316.00

Miscellaneous	442.00
Medical Corporation fees and dues ..	155.00
Interest on time deposits	923.66
TOTAL CASH AVAILABLE	<u>47,060.96</u>

DISBURSEMENTS:

Salaries, FICA taxes, Board Members' fees and expenses	11,230.23
Attorney's fee, expenses and investigations	3,368.41
Dues and expenses to Federation of State Boards of the U.S.	400.00
Office rent, supplies, printing, telephone and postage	4,497.93
Refund of fees	60.50
CPA audit	175.00
Miscellaneous—returned checks, bond, box rent, etc.	162.75
Cash balance in bank—January 1, 1967	4,312.44
Time deposits	22,853.70
	<u>27,166.14</u>
	\$47,060.96

REPORT OF THE COUNCIL

H. W. Thomas, M.D., Chairman

The Council met on Wednesday, May 4, 1966, following the final session of the House of Delegates and elected Dr. H. W. Thomas chairman and Dr. Alfred Kahn, Jr., editor of the Journal of the Arkansas Medical Society.

The Council met on August 14, 1966 and:

1. Approved the following Executive Committee actions:
 - A. Appointed Dr. Lee Parker as the Arkansas Medical Society representative on the Advisory Committee of the University of Arkansas Medical School for development of a Heart, Cancer and Stroke Program for the State.
 - B. Decided to discuss with Congressman Wilbur Mills at a dinner to be arranged, putting the Department of Health on an equal basis with the Department of Welfare for the administration of Title XIX.
 - C. Decided that each county medical society should make its own decision on the care of indigent children under the Head Start Program.
 - D. Directed that Arkansas delegates to the AMA work for the adoption of the principles of the Individual Responsibility Program and to purchase literature on the program from the Harris County (Texas) Medical Society to send to all members of the Arkansas Medical Society as a matter of information.

- E. Voted to advise the Director of the State Health Department that the Medical Society wished to cooperate with the department in the field of utilization committees but that it did not feel that it should appoint such committees. It was suggested that the local hospitals should work out their own problems in this regard through agreements with physicians in nearby towns. The State Health Officer was advised that the Medical Society will be happy to consult with him regarding the formation of utilization committees and to assist him with suggestions but the Society does not wish to assume any responsibility with regard to the operation, direction, or decisions of such utilization committees.
- F. Decided to appoint Dr. John Satterfield as the Medical Society representative on the Interagency Council on Smoking.
- II. The headquarters office was directed to set up a roster of the order in which the councilor districts would host future conventions. The Tenth Councilor District is to be the host in 1967 and the other councilor districts are to take responsibility for the meeting in numerical order, beginning with the First Councilor District in 1968.
- III. The Council voted approval of an expense account submitted by Mr. Warren for travel to various civic clubs throughout the State speaking on behalf of the Arkansas Medical Society Speakers Bureau.
- IV. Decided to decline the offer of Mead Johnson to underwrite the expenses of a scientific speaker at our next convention.
- V. Commended Dr. Wilbur G. Lawson, chairman of the Sub-Committee on Immunizations, for his interest and activities. The Council approved an immunization schedule to be distributed to all members of the Society and requested that Dr. Lawson work with Dr. Easley of the State Health Department to standardize the work of the department and the committee.
- VI. Authorized expenses for a representative to an AMA Conference on Immunizations in Atlanta, Georgia.
- VII. Directed that the second annual Officers Conference be held in connection with the House of Delegates meeting planned for December of 1966.
- VIII. Referred to the Legislative Committee a decision on whether or not to adopt a bill in Arkansas similar to the Casey Bill in California.
- IX. Took no official action on a request by the Practical Nurse Association for legislative support during the 1967 Legislature. The chairman of the Legislative Committee was requested to discuss the nurses legislative program with them.
- X. Requested that the Committee on Liaison with the Nursing Profession confer with Dr. McCrary of Hot Springs regarding a vocational nurses program in that city with a view to promoting a similar program throughout the state.
- XI. Referred to the Committee on Mental Health a suggestion by the Mental Health Association that that group and the Medical Society hold joint programs.
- XII. Voted to request the Executive Committee of the Council to continue to serve as Liaison with the Welfare Department and directed the committee to designate two representatives of the Society to travel to Washington in October as members of the Advisory Board to the Welfare Department.
- XIII. Requested the Medicare Negotiating Committee to work for an increase in Military Medicare fees.
- XIV. Approved an increase in the salary allowance for the editor's Journal assistant to \$1,800 a year.
- XV. Declined an invitation to co-sponsor a study to be made of Tuberculosis Control in Arkansas.
- XVI. Voted to authorize travel expenses for the president of the Society, up to a total of \$1,000 per year, to be paid upon his presentation of his expense account.
- XVII. Voted to contribute \$1,000 to the Arkansas Political Education Committee.

The Council met on Sunday, November 20, 1966, and transacted the following business.

- I. Approved the appointment of Dr. Carl Northcutt of Stuttgart to membership on the Professional Relations Committee of the Third Council District.
 - II. Designated the president and executive vice president the Society representatives to the Conference on Socio-Economics of Health Care in Chicago, January 22-23.
 - III. Requested the chairman of the Society's Committee on Medicine and Religion for 1967-68 to attend a workshop in Chicago in February.
 - IV. Heard reports by Drs. Thomas H. Wortham, Neil Crow, and Kenneth R. Duzan on conferences held in Dallas by the Department of Health, Education and Welfare on matters having to do with the over-age 65 Medicare program.
 - V. Dr. Wilbur Lawson reported on a symposium on immunizations held in Atlanta, Georgia.
 - VI. Requested the editor of the Journal to publish the reports of Drs. Crow, Duzan, and Lawson.
 - VII. Heard reports of Executive Committee meetings with the State Welfare Commissioner to discuss payments to physicians for services to welfare clients.
 - VIII. Gave authority to the Military Medicare negotiating team to decide what form negotiations for higher fees should take.
 - IX. After hearing further discussion on a proposed survey on tuberculosis programs in Arkansas, the Council voted to agree to co-sponsor the survey.
 - X. Directed that a resolution be drawn up and forwarded to Congressman Mills endorsing changes in Internal Revenue code to allow deductions for travel and other expenses for persons attending educational and professional meetings.
 - XI. Delegated authority to the Executive Committee to approve or disapprove a brochure to be prepared by the Medical Center proposing legislation to allow out-of-state students to register at the University of Arkansas Medical School.
 - XII. Directed that travel expenses to Council meetings be paid for the Society's two AMA delegates on the same basis as a member of the Council.
 - XIII. Authorized the expenditure of up to \$125 for a five year supply of certificates for awards to scientific exhibitors at the annual meeting.
 - XIV. Voted to approve the Health Department paying for 14 x 17 chest films made in hospitals and private physicians' offices.
 - XV. Heard a report by Dr. Burton that a resolution would be introduced in the AMA House of Delegates at Las Vegas demanding that hospitals accept the usual methods for admitting and re-certifying patients under the new Medicare law.
- The Council met on Sunday, February 12, 1967, and transacted the following business:
- I. Decided not to send a representative to the AMA Congress on Environmental Health Management in New York.
 - II. Accepted Dr. Payton Kolb's offer to represent the Society at his own expense at a Conference on Mental Health to be held in Chicago.
 - III. Approved the budget for 1967 as presented by the Budget Committee.
 - IV. Received a report of the negotiations between the Executive Committee of the Arkansas Medical Society, the Governor of Arkansas, and the Welfare Commissioner regarding payment for the medical care of welfare patients.
- Accepted in principle a statement of policy on relations between the Medical Society and the Welfare Department as drawn up by Dr. Whittaker. Requested that the Executive Committee and legal counsel review the wording of the statement.
- V. Approved the report of C. C. Long, chairman of the Fee Negotiating Committee for Military Medicare, and authorized the chairman of the Council to consummate a new contract with the Office for Dependents' Medical Care based upon the usual and customary fee principle as reported by Dr. Long.
 - VI. Directed the Executive Vice President to write a letter to all members of the Society pointing out the accomplishment of the Society in the field of fee negotiations.

- VII. Approved a \$1,000 contribution to the Arkansas Political Education Committee.
- VIII. Adopted a resolution opposing the compulsory use of generic drugs which was previously approved by the AMA.
- IX. Agreed to contribute \$10 to the Interagency Council on Smoking and Health.
- X. Decided not to accept advertising or sell exhibit space to Dunhall, Inc.
- XI. Went on record opposing House Bill 391 which would prohibit the Health Department from regulating the frozen food industry.
- XII. Decided to request the Governor to appoint the State Health Department as the agency to handle Comprehensive Health Planning in Arkansas under Public Law 89-749.
- XIII. Congratulated Mrs. C. C. Long upon her nomination as president-elect of the Woman's Auxiliary to the American Medical Association.
- XIV. Directed the Constitutional Revisions Committee to take the necessary steps to combine all fee committees under one committee to be appointed by, and remain under, the jurisdiction of the Council of the Arkansas Medical Society.
- XV. Confirmed the appointment of Dr. C. Lewis Hyatt to the Professional Relations Committee of the Fourth Councilor District.
- XVI. Referred the report on "Tuberculosis Control in Arkansas", made by the TB Association and other groups and co-sponsored by the Arkansas Medical Society, to the Sub-Committee on Tuberculosis of the Arkansas Medical Society with the request that it report back to the Council not later than the annual meeting in Hot Springs with its recommendation for action by the Society.

REPORT OF THE EXECUTIVE VICE PRESIDENT

Mr. Paul C. Schaefer

The passage of the over-age 65 Medicare Law, as expected, changed the direction of organized medicine's efforts as well as the individual prac-

tice of medicine. While there continue to be new legislative proposals which must be supported, opposed, or modified, the principal effort during 1966 was expended in the area of trying to adjust to the new laws and to influence the regulations affecting the practice of medicine. A great part of headquarters time and effort, as well as that of the officers and committees of the Society, was thus occupied. It is apparent that the new laws place great authority over the practice of medicine in the hospitals, public health department, and the fiscal intermediaries for Medicare. With the passage of time, these three groups will become more and more dominant in the medical scene. To keep pace with the opportunities offered these organizations and the responsibilities forced upon them by the law, medical organization must increase its activities and its effectiveness. Unity in action and effective participation in medical organizations by an increasing number of physicians is necessary if the practice of medicine is to maintain its position in Society. The passage of the Medicare Law calls for greater action — not resignation. The headquarters office looks forward to assisting in any increased programs decided upon by the Council, the House of Delegates, and the officers.

PROPOSED AMENDMENT TO THE CONSTITUTION AND BY-LAWS

The following proposed changes in the By-Laws were approved by the House of Delegates at the 1966 meeting and were published in the June 1966 issue of the Journal of the Arkansas Medical Society. The House will take final action on these proposals at the 1967 convention:

Amend the By-Laws, Chapter VIII, Section 1(A) by adding as committee number twelve "Committee on Area-Wide Planning".

Amend the By-Laws, Chapter VIII, by adding Section 13, which reads as follows: "A Committee on Area-Wide Planning of Medical Facilities shall take the initiative in organizing community, district, and/or state groups for the efficient planning of new medical and hospital facilities or additions made to such existing institutions.

SCIENTIFIC EXHIBITS

The scientific exhibits will be located in the Mezzanine Lobby area and the area of the Conference Center adjacent to the technical exhibits, Arlington Hotel. All members are urged to visit the exhibits as they are an integral part of the program. The following will have scientific exhibits.

1. John Satterfield, M.D., Little Rock
2. William B. Stanton, M.D., Fort Smith
3. D. B. Stough, III, Hot Springs
4. Dale Alford, M.D., Little Rock
5. Drs. Scruggs, Langston, Bearden, Lane, and Brenner, Little Rock
6. Kenneth G. Jones, M.D., Little Rock
7. Benjamin Drompp, M.D., Little Rock
8. The Arkansas Children's Colony, Conway
9. Arkansas State Health Department, Little Rock
10. Radiology Associates, Little Rock
11. University of Arkansas Medical Center Library, Little Rock
12. Ralph A. Downs, M.D., Fort Smith
13. University of Arkansas Medical Center, Little Rock
14. A. J. Brizzolara, M.D., Little Rock
15. Harry Hayes, Jr., M.D., Little Rock
16. Arkansas Children's Hospital, Cleft Palate Clinic, Little Rock



Golf Tournament

Dr. Robert McCrary, chairman of the Golf Tournament Committee, urges you to bring your clubs and participate in the annual tournament.

Rehabilitation Center

Dr. Gaston A. Hebert, Supervisor of Medical Services at the Hot Springs Rehabilitation Center, invites physicians and their wives to visit the Center during the meeting in Hot Springs. Visitors are welcome any week day between the hours of 8:00 A.M. and 5:00 P.M.

Arkansas Medical Society. Tour.

April, 1967

THE JOURNAL OF THE Arkansas MEDICAL SOCIETY

Vol. 63 No. 11

FORT SMITH, ARKANSAS

**91st ANNUAL SESSION
Arkansas Medical Society
HOT SPRINGS, APRIL 30-MAY 3, 1967**

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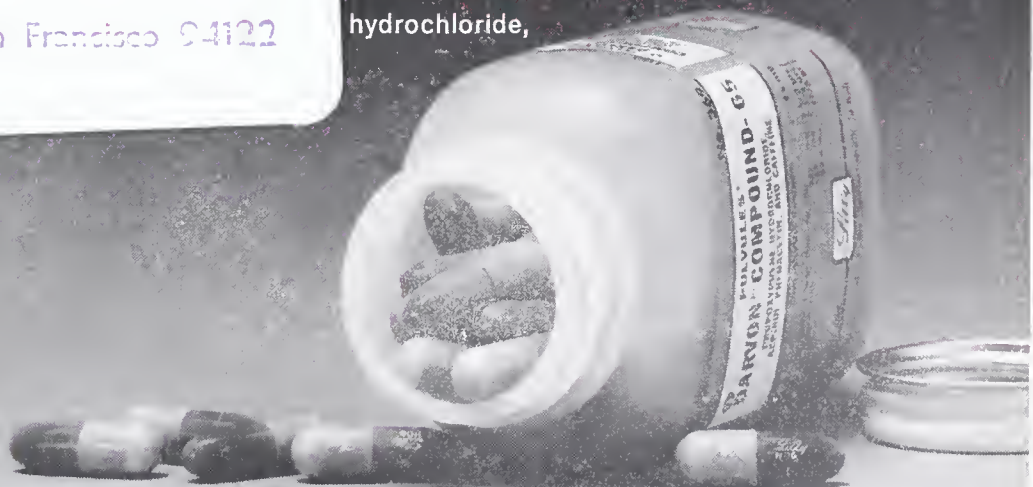
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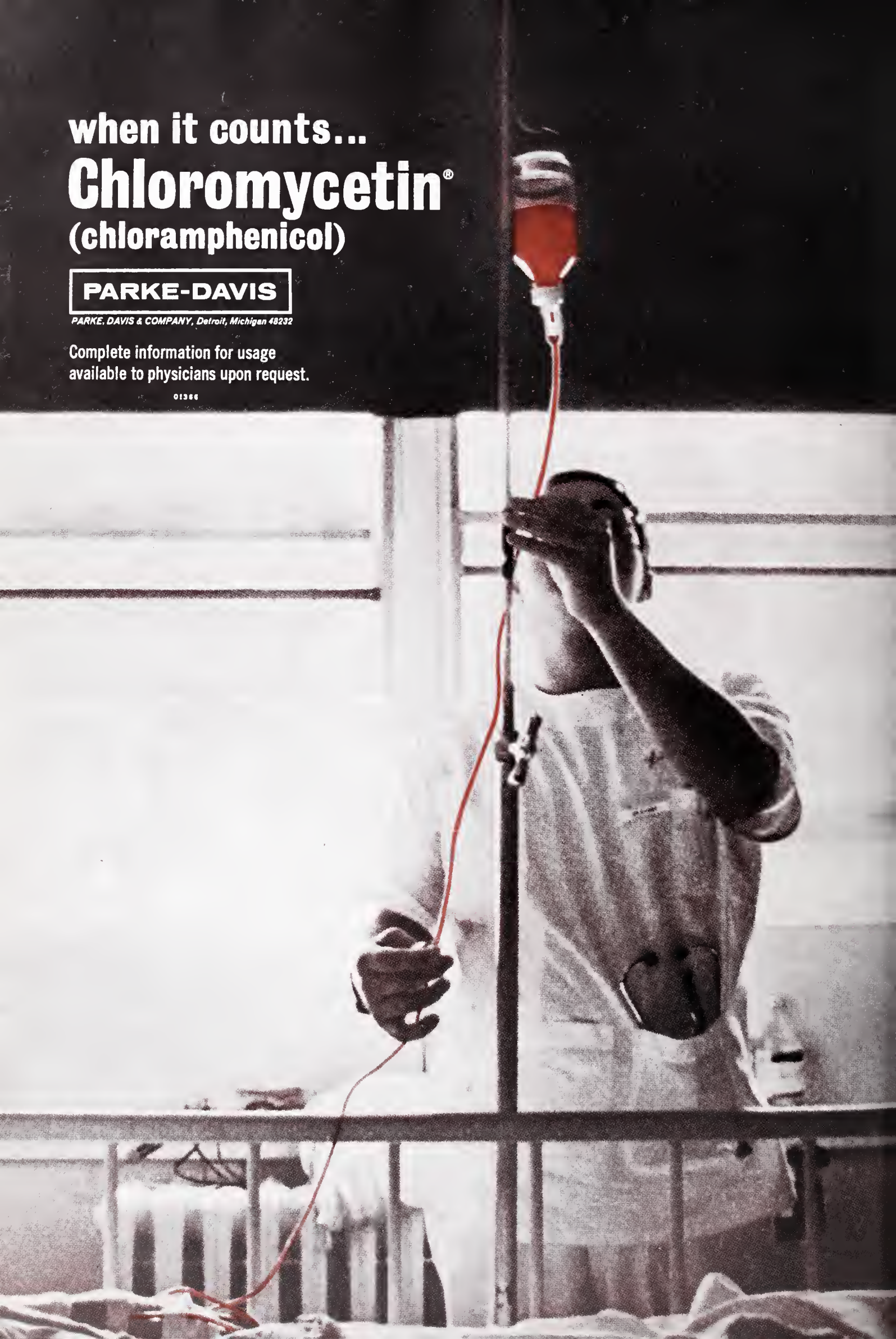
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The Subclavian Steal Syndrome A Case Presentation

John V. Satterfield, M.D.*

Woodbridge E. Morris, M.D.**

The Syndrome

The subclavian steal syndrome may be defined as symptoms of cerebral ischemia caused by obstruction of the subclavian artery. Symptoms that have been described are dizziness, diplopia, postural vertigo, head or face pain, or unilateral diminished vision. Occasionally, exercise of the arm may induce the cerebral symptoms. Ischemic symptoms may also occur in the arm formerly supplied by the obstructed vessel: intermittent claudication, weakness, paresthesias, numbness, and pain. Not all occlusions of the subclavian artery cause cerebral symptoms and therefore not all would properly fit this syndrome.¹

The cerebral symptoms are caused by a siphoning of blood from the cerebral circulation to the subclavian artery distal to its obstruction, via retrograde flow down the vertebral artery. The essential requirement for the production of this entity is a pressure gradient from the cerebral circulation to the subclavian artery distal to the obstruction. This in turn requires good flow into the brain via carotid and contralateral vertebral arteries and a patent vertebral artery on the obstructed side.

Although this syndrome was anticipated earlier^{2, 3}, Reivich, et al⁴, 1961 were the first to demonstrate that subclavian artery obstruction could produce these cerebral symptoms. They performed experimental work in dogs confirming, by direct measurement, the retrograde vertebral artery flow. Since then, several reports have confirmed the clinical and radiological manifestations of the syndrome, and it is now firmly estab-

lished as one of the specific syndromes caused by atherosclerosis.^{5, 6, 7} There has also been a recent article describing the syndrome in several people after the Blalock shunt operation (subclavian artery to pulmonary artery anastomosis for tetralogy Fallot).⁸

Anatomy

The vertebral arteries arise from the first part of the subclavian arteries and are the first branch of each subclavian artery. They enter the cranium through the foramen magnum. The vertebral arteries then fuse to form the basilar artery which in turn gives rise to the posterior cerebral arteries, and then contributes to the Circle of Willis via the posterior communicating arteries. It is apparent that the low pressure vertebral artery on the diseased side could siphon blood from the opposite vertebral and/or from the internal carotids via the Circle of Willis and basilar artery. The precise cerebral symptoms would depend on which collateral vessel was more deprived of normal blood flow. The cerebral circulation is one of the important collateral networks supplying the subclavian artery.^{5, 8}

There are extra-cranial collateral net works supplying the subclavian artery.^{5, 8} The thyrocervical and costocervical trunks arise from the first part of the subclavian artery distal to the origin of the vertebral artery. Filling of the distal subclavian may occur via anastomoses between the inferior thyroid arteries and thyrocervical trunks or via anastomoses between the muscular branches of thyrocervical artery and the occipital artery. The transverse cervical artery may also pick up collateral flow from anastomoses with the occipital artery. It seems that these extra cranial collaterals are inadequate when the steal syndrome occurs. The absence of cerebral symptoms with subclavian artery obstruction would mean that

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**Internal Medicine, 5324 West Markham Street, Little Rock, Arkansas.

either the cerebral blood flow through the other cerebral vessels was diminished and hence could not also supply the arm, or that the extra-cranial collaterals were adequate to meet the flow requirement. There has been one case report of the syndrome occurring with an obstruction in the third part of the subclavian artery, (distal to the origin of the vertebral artery). In this circumstance the muscular branches of the vertebral artery must be capacious enough to allow the "siphon effect".¹⁰

The Physical and Roentgen Signs of Subclavian Artery Obstruction

The most constant and dependable sign of subclavian artery obstruction is a difference in blood pressure between the arms. The pressure difference ranges from about 20 mmHg lower in the effected arm, to unobtainable. The pulses in the arm may be normal, diminished, or absent. In the case of partial obstruction a bruit may be heard over the supra-clavicular fossa. Infrequently, differences in skin temperature between the hands can be detected. Surprisingly, no neurological signs have yet been reported except for weakness in the affected arm, which is probably a muscular rather than a neurological malfunction. Exercise of the arm may precipitate the cerebral symptoms.

In order to demonstrate the lesion and the altered blood flow the aortic arch must be filled with radiographic contrast media and films exposed at rapid intervals to follow the flow. Arterial injections distal to the arch can give a false positive result.⁹ This study is best accomplished by passing a catheter into the aortic arch through a per cutaneous femoral arterial puncture. The patient is positioned so that the arch and subclavian, carotid, and vertebral arteries are present on the film. The contrast media is then injected and the films, loaded in a rapid cassette changer, are serially exposed.

The arch, and its branches are immediately visible on the films, (Figure 1). The blocked subclavian, and its vertebral cannot be seen because they contain no contrast media, (Figure 2). As the media progresses through the cerebral circulation the vertebral artery on the diseased side becomes opacified and later the subclavian artery distal to the obstruction becomes visible, (Figure 3). This radiographic study proves the presence and extent of the obstruction, and its detrimental effect on the cerebral circulation.⁷

Figure 1

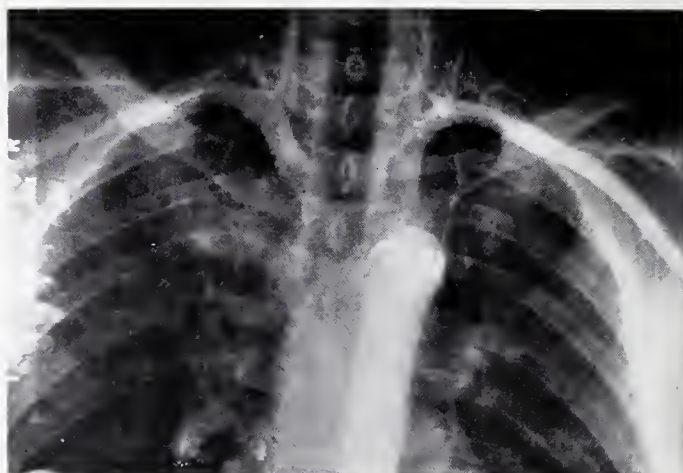


Figure 2

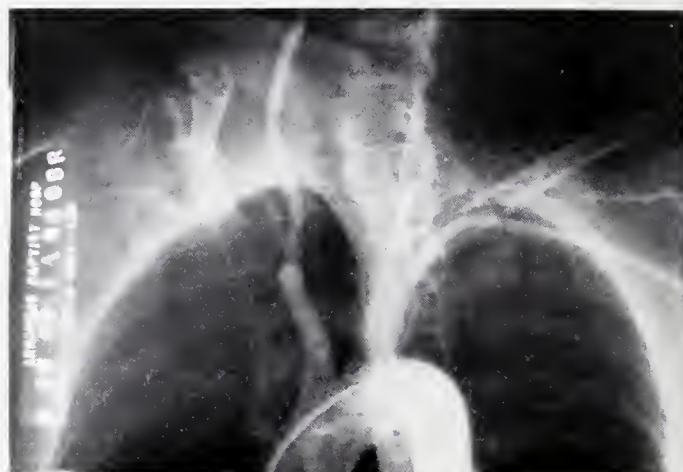


Figure 3



Treatment

To restore normal blood flow to the arm and the basilar artery, the obstruction must be eliminated. This can be accomplished by endarterectomy or bypass graft. Either surgical procedure is satisfactory; the decision is based on technical factors.

In the author's experience and according to the few reports in the literature the steal syndrome is the most successfully treated of the atherosclerotic syndromes. The return of function

is usually prompt and complete.^{4, 5, 6} These good results are due in part to the fact that the syndrome is unlikely to occur in the presence of widespread atherosclerosis because good inflow into the brain is necessary through the other cerebral arteries. In other words, a sharply localized obstruction is almost always found with very little associated atherosclerosis.

There is no medical treatment for this disease.

Case Presentation

ARKANSAS BAPTIST MEDICAL CENTER
CASE No. 4653-66. The patient is a 60 year old white woman admitted to the hospital for evaluation of peculiar dizzy spells. She had noticed periods of incoordination and weakness growing progressively worse for seven years. She had never lost consciousness. Within the past year she began having right face pain and diminished vision in the right eye. She gave up fishing two years ago because her right arm could not hold a rod. Recently her right arm felt cool with occasional paresthesias and peculiar sensations of detachment. There was no claudication.

Past history and review of systems contributed no essential information.

Blood pressure was 120/80 in the right arm and 150/90 in the left arm. The right radial pulse was weak. A bruit was present in the right supraclavicular fossa. There were no other physical abnormalities. Exercise of the right arm produced no claudication or cerebral symptoms.

Plain chest X-rays were normal. An aortogram demonstrated high grade partial block of the right subclavian artery and retrograde flow down the right vertebral artery. (Figure 2, 3).

A right subclavian endarterectomy was done. Postoperatively the patient was immediately aware of improved cerebral function and a normal feeling right arm. Her immediate recovery was uneventful. Three months later she is free of the cerebral symptoms and can use her right arm normally. Non-union of the sternotomy, diagnosed after discharge from the hospital, required a bone graft at a second operation.

Summary

Subclavian arterial obstruction is a recently recognized cause of cerebral ischemia. The cerebral ischemia is caused by a siphoning of blood from the brain by lower pressure in the distal subclavian artery. The cerebral blood reaches the subclavian artery by flowing retrograde down the vertebral artery. This syndrome was named descriptively as the "subclavian steal" in an editorial in the New England Journal of Medicine.¹⁰ The symptoms, anatomy, physiology and treatment of this syndrome are described.

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Pathogenesis and Treatment of Portal Hypertension

Jeremiah G. Turcotte, M.D.*

Portal hypertension and bleeding gastroesophageal varices are complications of diseases of the portal venous system and liver. Like arterial hypertension chronically elevated portal pressure can result from diverse etiologies. In adults nutritional (alcoholic, Laennec's) cirrhosis is the commonest cause of portal hypertension in the United States; in children cavernomatous change or thrombosis of the portal vein is the most frequent etiology. Although portal hypertension is seen in both cirrhosis and portal vein thrombosis, the management and prognosis of such cases is quite different. An understanding of the normal and pathologic physiology of the portal system will help explain these differences and permit the physician to recommend therapy for portal hypertension on a more rational basis.

Pathogenesis of Portal Hypertension

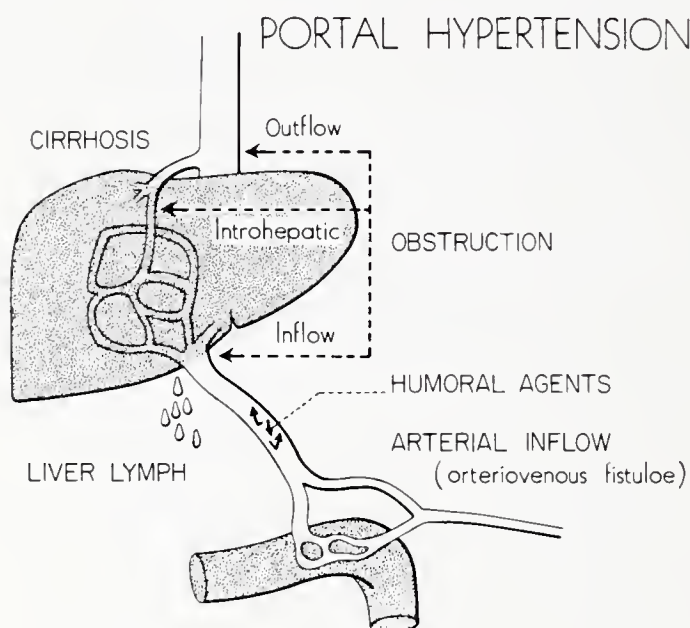


FIGURE 1

Factors important in the pathogenesis of Portal Hypertension.

The dual afferent blood supply of the liver requires that the control of hepatic arterial flow be related to portal venous flow. Approximately 25% of the total blood volume perfuses the liver every minute.¹ Under normal circumstances the portal vein contributes 70% and the hepatic artery 30% of total hepatic blood supply. A decrease in portal blood flow triggers an increase in hepatic

arterial flow. Even if portal flow is completely diverted away from the liver, the hepatic artery can supply up to 80% of normal total hepatic flow. Whether there is a compensatory increase in portal flow when hepatic arterial supply is diminished is not clear from presently available evidence.²

Normal portal pressure varies from 5 to 18 cm. of saline. Pressure within this dynamic system is the main result of resistance offered by the liver, tone of the vein walls, and pressure transmitted to the portal bed from the arterial system. A change in any one of these components will alter portal pressure. Thus portal hypertension may be produced in patients by diseases which obstruct flow, increase venous tone, or open arteriovenous shunts to allow increased pressure and blood flow to reach the portal system.

Recently the role of humoral factors and hepatic lymph formation in the etiology of portal hypertension have been re-emphasized. Shaldon noted increased concentrations of norepinephrine in the portal blood of patients with portal hypertension, but this observation could not be confirmed in our laboratories in patients with portal hypertension secondary to cirrhosis of the liver.³ Work is now underway to determine the role of catecholamines in patients with extrahepatic obstruction of the portal vein. Dumont has pointed out that hepatic lymph production is markedly increased in patients with cirrhosis. Normally thoracic duct flow is approximately 1 ml per minute. In patients with cirrhosis and portal hypertension thoracic duct flow may be increased to 12 ml per minute and the pressure within the thoracic duct elevated to 70 centimeters of saline.⁴ This increased lymph production seems to be a result of hepatic obstruction to portal flow, however, and not a primary cause of portal hypertension.

In most clinical circumstances several mechanisms responsible for control of portal pressure must be deranged before permanent portal hypertension results. Obstruction to portal flow within the liver at the site of the hepatic venule is commonly thought to be the principal cause of elevated portal pressure in patients with nutritional cirrhosis. Abnormal arteriovenous fistula within the liver and gastric wall have also been demon-

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strated both anatomically and physiologically in these patients and undoubtedly these fistulae play a part in sustaining portal hypertension. Some patients have minimal evidence of liver disease, but still have severe portal hypertension. In these situations increased flow into the portal system, perhaps through arteriovenous fistula, is thought to be the primary cause of the elevated pressure.^{5, 6} Child has demonstrated that simple obstruction of the portal vein does not lead to permanent hypertension in humans.⁷ This work implies that extrahepatic portal hypertension as is commonly seen in children must be associated with some derangement in addition to simple obstruction of the portal vein.

Management of Portal Hypertension:

Physicians are now attempting to control portal hypertension by influencing one or more of these etiologic factors. For instance, posterior pituitary extract selectively lowers portal pressure by reducing splanchnic arterial flow.⁸ Unfortunately, this drug is only partially effective and is not practical for long-term use. By cannulating the thoracic duct the removal of liver lymph can be augmented and hepatic congestion decreased. This will lower portal pressure and stop variceal bleeding, but protein losses become excessive and the cannulae remain patent for only limited periods of time.

The only satisfactory means now available to permanently lower portal pressure is to fashion a surgical shunt between the portal and systemic venous systems. This bypasses any obstruction present within the liver or portal vein and also reduces liver congestion. The four popular types of shunts employed today are diagrammed in Figure 2. Hemodynamically there is little difference between end-to-side and side-to-side portacaval shunts. Recent studies using cinephoto-fluorography and the electromagnetic flow meter have convincingly demonstrated that most blood flows directly from the portal vein into the vena cava through a side-to-side shunt and that net flow either towards or away from the liver in the hepatic limb of the side-to-side shunt is negligible.³ Because of a high incidence of closure in most surgeons' experience splenorenal shunts are usually reserved for cases in which the portal vein is thrombosed. This shunt does have the advantage of a lower incidence of post-operative hepatic encephalopathy than portacaval shunts. Experience with mesenteric-caval anastomoses is

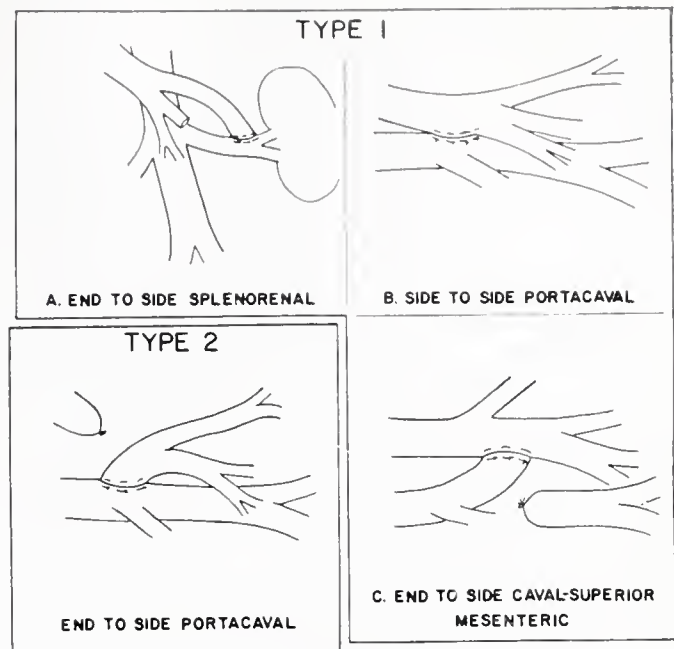


FIGURE 2
Hemodynamic Types of Shunts

limited, but this shunt seems to be a satisfactory alternative when a portacaval shunt cannot be fashioned. Mesenteric-caval shunts are especially useful in children with portal vein obstruction, since the vena cava is a much larger structure to anastomose than the diminutive splenic and renal vein present in these youngsters.

Experience at the University of Michigan confirms the observation that the prognosis of patients with portal hypertension is directly related to the degree of impaired liver function. Table I summarizes our method of classifying patients according to liver function. Patients with good hepatic reserve tolerate bleeding episodes, survive operative procedures, and may live many years; in contrast the advanced cirrhotic has a poor prognosis no matter what therapy is attempted. Bromsulphalein retention and prothrombin concentration are the most sensitive indicators of hepatic cellular dysfunction, but serum bilirubin

TABLE I: CIRRHOSIS OF LIVER—DEGREE OF IMPAIRMENT OF FUNCTION

GROUP DESIGNATION	"A" MINIMAL	"B" MODERATE	"C" ADVANCED
SERUM BILIRUBIN (mg/100ml)	BELOW 20	20-30	OVER 30
SERUM ALBUMIN (gms/100ml)	OVER 3.5	3.0-3.5	UNDER 3.0
ASCITES	NONE	EASILY CONTROLLED	POORLY CONTROLLED
NEUROLOGICAL DISORDER	NONE	MINIMAL	ADVANCED "COMA"
NUTRITION	EXCELLENT	GOOD	POOR "WASTING"

*Equivocal in Biliary Cirrhosis

and albumin have proven to be the most helpful laboratory studies to predict prognosis. The general state of nutrition and extent of muscle wasting are extremely important prognostic indicators. Since individual patients sometimes do not clearly fall into our "A", "B", or "C" categories, clinical judgment is also important in evaluation. We have found this classification extremely useful in assessing operative risk and long-term survival.

The operative mortality in the last one-hundred consecutive portacaval shunts performed at the University of Michigan Medical Center are tabulated below. (Table II). Only patients with nutritional or post-necrotic cirrhosis have been included in these statistics and cases undergoing other types of shunts have been excluded. Operative mortality is obviously directly related to liver function as measured by our "A", "B", and "C" classification. There appears to be a significantly higher mortality for patients with end-to-

TABLE II. OPERATIVE MORTALITY IN 100 PORTACAVAL SHUNTS PERFORMED AT THE UNIVERSITY OF MICHIGAN BETWEEN JANUARY, 1959, AND JANUARY, 1966

	GROUP A EXPIRED/TOTAL	GROUP B E/T	GROUP C E/T
END-TO-SIDE	0/20 0%	1/12 8%	12/18 67%
SIDE-TO-SIDE	3/15 20%	2/16 13%	7/19 37%

side shunts versus those having side-to-side shunts within Group "C". Additional analysis of these cases is necessary to ascertain if this difference is truly significant.

Postoperative survival is illustrated graphically in Figure 2. These curves represent the cumulative probability of survival for 84 consecutive patients undergoing portacaval shunts at the University of Michigan Medical Center.⁹ A 100% followup of these patients has been obtained. Again, only patients with nutritional or postoperative cirrhosis are compared. Operative mortality is included in the first 3 month interval. The data indicates that even though patients with advanced liver disease (Class "C") survive operation, the majority expire within two years following operation. The most frequent cause of death is liver failure. Patients with good liver function have favorable long-term prognoses and recurrent variceal hemorrhage is prevented by the shunt. The long-term probability of survival does not differ significantly for patients undergoing either end-to-side or side-to-side shunts.

Presently our usual indication for recom-

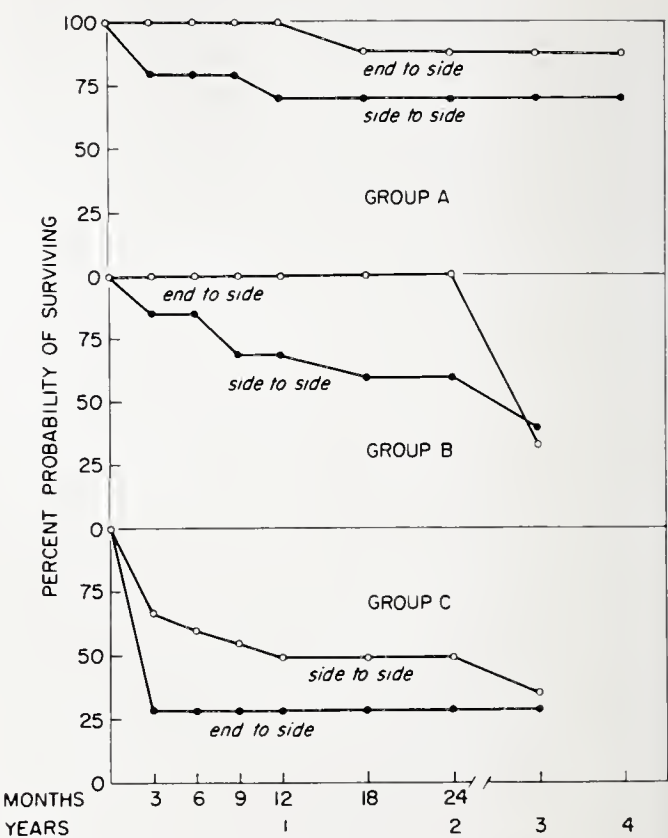


FIGURE 3
Probability of survival following Portacaval Shunt derived from 84 cases at the University of Michigan.

mending a portacaval shunt is the proven presence of gastroesophageal varices which have bled on at least one occasion.³ Because of the high operative mortality and discouraging long-term prognosis for patients with advanced liver disease, ideally shunt surgery should be reserved for cases with good or only moderately impaired liver function. When managing the individual patient with recurrent or continual bleeding, however, circumstances frequently impel the surgeon to attempt a portacaval shunt in the poor risk case. This approach seems justified, since a few patients will be rehabilitated for many months. Significant improvement in the management of patients with portal hypertension and severe liver disease will only be achieved when methods of augmenting liver function are developed. Transplantation of the liver is one approach to this problem which holds promise.

Summary:

Mechanical obstruction to portal flow, increased venous tone, and increased flow and pressure introduced into the portal system by arteriovenous fistulae are the primary mechanisms involved in the pathogenesis of portal hypertension. Humoral factors and excessive hepatic lymph production may also be important in sustaining

elevated portal pressure. The only practical means to permanently lower portal pressure is to fashion a shunt between the portal and systemic venous systems. Indications for shunt surgery, operative mortality, and long-term prognosis in the last 100 cases at the University of Michigan Medical Center are presented and discussed.

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Quantitative Histological Study of Human Lumbar Vertebrae

R. G. Bromley et al (Dept of Anatomy, University of Utah College of Medicine, Salt Lake City, Utah) *J Geront* 21:537-543 (Oct) 1966

By point counting, 92 undecalcified and thin-sectioned human lumbar vertebrae were quantitated. The decrease in the percentage of the marrow cavity occupied by mineralized bone matrix in these sections, brought about by aging, occurred more rapidly in females than in males. Separate standards are necessary when considering the lumbar vertebral body, which has distinct differences from other trabecular and cortical bone. A value of 8.7 for percentage of bone determined histologically was indicative of osteoporosis. In mid-adult life osteoid seams were decreased, indicating decreased remodeling. The perimeter in cm/sq of bone area was higher for vertebrae than for cortical bone.

Skeletal Changes in Diabetics Under 45 Years of Age

F. Kuhlencordt (I. Medizinische Universitätsklinik, Martinistr. 52, Hamburg, Germany), H. Wieners, and H. Gocke *Deutsch Med Wschr* 91:1913-1917 (Oct 28) 1966

Clinical and radiological examination was made in 40 diabetics (24 women) 45 years of age or less. In 13 there was moderate to marked osteopathy, which in almost all instances had not caused pain; 12 of these had diabetes for more than 15 years. This time factor, which appears to be important in the genesis of osteopathy, is analogous to the development of other known complications of diabetes. It must, therefore, be assumed that the incidence of osteopathy must be fairly high, but the reason why it occurs in only relatively few diabetics remains unexplained and needs to be investigated.



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Hypersensitivity to Hymenoptera Insects

Neal A. Vanselow, M.D.*

Bees, wasps, hornets, and yellow jackets are members of the order *Hymenoptera* within the class *Insect*. It has been known for many years that an occasional person will die following a Hymenoptera sting, but the full extent of the morbidity and mortality caused by these insects has only recently been emphasized. In 1963, Parrish¹ published an analysis of deaths due to venomous animals in the United States during the ten year period 1950-1959. His data was obtained from death certificates recorded in the National Office of Vital Statistics, U.S. Public Health Service. Of the 460 reported deaths due to bites or stings of venomous animals during this period, 50% were attributable to the Hymenoptera insects. Poisonous snakes, poisonous spiders, and miscellaneous animals including scorpions, coelenterata, and stingrays were responsible for smaller numbers of fatalities. It is interesting to note that bees caused 27% of the deaths whereas the rattlesnake was implicated in only 20.4%. It must be emphasized that Parrish's data tends to underestimate the problem of Hymenoptera reactions, since the figures he reports are based only on cases in which the cause of death was recognized. The number of Hymenoptera deaths which were erroneously attributed to other causes, and the considerable morbidity resulting from Hymenoptera stings are not reflected in his study.

The adverse effects caused by the bites or stings of most venomous animals result from the direct toxic properties of the venom. Such is not the case with the Hymenoptera insects. Although Hymenoptera venom has some toxic properties as evidenced by the local pain, redness, and swelling which follows most stings, the majority of serious reactions are on an immunologic basis.² Antigens present in the Hymenoptera body and venom sensitize the victim. A subsequent sting results in an antigen-antibody reaction, which in turn causes the release of pharmacologic mediators such as histamine, producing the clinical manifestations.

Characteristics of Hymenoptera Reactions

The immunologic nature of most adverse re-

actions to Hymenoptera stings causes these reactions to differ significantly from the non-immunologic reactions which result from the bites or stings of most other venomous animals. Since sensitization must occur before clinical signs and symptoms will result, adverse reactions to Hymenoptera insects are not seen with the initial sting. Allergic reactions to Hymenoptera insects tend to occur rapidly following the sting, whereas the toxic reactions seen following snake or spider bites tend to be delayed in onset. Parrish¹ has demonstrated that most deaths resulting from Hymenoptera stings occurred within one hour, while several hours usually elapsed before patients died following a snake or spider bite.

The Clinical signs and symptoms which occur in the sensitized subject following a bee, wasp, hornet, or yellow jacket sting are those of an immediate-type allergic reaction. Less severe reactions may involve only excessive local swelling, redness, and warmth. With subsequent stings, these may progress to involve systemic manifestations, although it is not uncommon for systemic symptoms to be present with or without local swelling at the time the patient experiences his first adverse reaction to a sting. Systemic reactions to insect stings are similar to anaphylactic reactions caused by drugs or biologicals and may present with any of the following: urticaria, angioedema, asthma, nausea, vomiting, abdominal cramps, hypotension due to vascular collapse and unconsciousness. In addition, respiratory distress caused by edema of the hypopharynx, epiglottis and larynx has been emphasized by Austen³ as a common feature of systemic anaphylaxis in man and should not be overlooked in Hymenoptera-sensitive patients following a sting. Local and systemic reactions usually begin within minutes and may progress rapidly. In general, the earlier the onset of the reaction, the more severe it is likely to be.

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Characteristics of Hymenoptera-Sensitive Patients

Hypersensitivity reactions to bee, wasp, hornet, or yellow jacket may occur in either sex and at any age. Reactions tend to be more severe, however, in patients over 30, probably reflecting increasing sensitivity as the total number of stings received mounts over the years⁴. Approximately 70% of patients experiencing allergic reactions to Hymenoptera stings have no personal history of atopy. Although systemic reactions may be heralded by increasing amounts of local swelling with prior stings, it is interesting to note that in a recent series of Hymenoptera-sensitive patients studied by the Insect Allergy Committee of the American Academy of Allergy,⁴ over half of those patients who experienced severe systemic reactions had received no adequate prior warning. Of the 630 patients with severe systemic reactions studied, 303 had experienced no reaction or at most a local reaction to the previous sting, and 83 could not even recall a previous sting.

Diagnosis

There is no laboratory procedure which can make the diagnosis of Hymenoptera sensitivity. Scratch or intracutaneous skin tests with extracts of Hymenoptera whole bodies or venom will produce immediate wheal and flare reactions in some sensitive subjects, but in general the degree of skin reactivity does not correlate with the intensity of the clinical reaction; furthermore, it is not uncommon to see negative skin tests in patients with unequivocal evidence of Hymenoptera allergy. In addition, positive skin tests are not uncommonly seen in patients with no clinical evidence of sensitivity to these insects.⁵ The latter finding may be due to the presence of non-specific irritants in the test extracts. Antibodies directed against Hymenoptera antigens can be found in the sera of sensitive patients by a number of *in vitro* and biologic techniques^{2, 6}, but these studies are at present of little practical diagnostic value.

A careful medical history is the single most important tool in making the diagnosis of hypersensitivity to bee, wasp, hornet, or yellow jacket. A history of systemic allergic symptoms following a sting is an indication for treatment. In addition, treatment should be recommended for those pa-

tients who experience excessive local edema following a sting. An example of the latter situation would be edema of the entire upper extremity following a sting on the hand. Many allergists also perform skin tests with Hymenoptera extracts, but these are done to establish the extract dilution with which to start specific hyposensitization rather than to establish a diagnosis.

Treatment

The treatment of patients sensitive to Hymenoptera insects can be divided into three categories: prevention of stings, immediate treatment of the reaction, and hyposensitization.

Stings can be avoided by instructing the patient to observe a few simple rules. These are listed in detail in a short pamphlet published by the Insect Committee of the American Academy of Allergy and available to interested patients and physicians.* Known foci of bees, wasps, hornets or yellow jackets should be avoided. Scented preparations such as hair tonic, hair spray, perfume, and after-shave lotion should not be worn since they tend to attract insects. Similarly, Hymenoptera are attracted by brown, black, or dark red clothing or by floral prints. White clothing is preferable since this is least insect-attracting. Sensitive patients should not go barefoot or wear sandals when outdoors. Finally, an insecticide aerosol "bomb" spray should be available nearby when the patient is outside or driving the car. This is particularly important when the patient is in an area containing trash or garbage cans, since Hymenoptera are attracted to these places.

Patients are most apt to be stung when outside and away from immediate medical assistance. For this reason, and because immediate treatment is urgently needed following a sting, we have recommended that Hymenoptera-sensitive patients carry an oral antihistamine and a sympathomimetic agent with them at all times. These may be carried in a small pill box or in a locket or compartment wrist bracelet. A 50 mg. capsule of Benadryl is a satisfactory antihistamine. Although subcutaneous aqueous epinephrine is the sympathomimetic of choice following a sting, many patients will not carry the bulky equipment necessary for a self-administered injection and are reluctant to inject the drug when stung. For this reason, we often suggest that the patient carry a 10 mg. tablet of sublingual Isuprel. If stung, the patient swallows the antihistamine capsule, places the sublingual Isuprel under his tongue, and im-

*Prevention of stings by Hymenoptera. Prepared by Insect Committee of the American Academy of Allergy, 756 Milwaukee St., Milwaukee, Wisconsin.

mediately travels to the nearest available physician. Although Isuprel may increase the hypotension associated with severe insect hypersensitivity reactions, its ease of administration makes it a useful drug under most circumstances.

The honey bee is the only Hymenoptera insect which leaves her stinger with attached venom sac in the victim. It takes several minutes for the venom sac to inject its full quantity of venom following a sting. If stung by a bee, it is therefore worthwhile for the patient to immediately remove the stinger with one swift scrape of the fingernail. The sac should *not* be squeezed between thumb and forefinger as this merely injects more venom.

Treatment of generalized reactions in Hymenoptera sensitive patients who have reached a physician's office or hospital is the same as treatment of anaphylactic reactions due to other causes. If the sting is on an extremity, a tourniquet should be applied proximal to the site of the wound to slow systemic absorption of the antigen. The most useful drug in the treatment of such reactions is aqueous epinephrine 1:1,000, 0.3 ml. given subcutaneously every 15-20 minutes as necessary. Intravenous antihistamines may also be used in severe reactions. If bronchospasm is present, intravenous aminophylline (0.5 gms. given to adults in 250 ml. 5% D/W over a 20 minute period) is helpful, but may be contraindicated if hypotension is also present. Intravenous vasopressors, oxygen, and tracheotomy may be necessary if hypotension, cyanosis, or upper airway obstruction are present. In general, corticosteroids are of little value, since the outcome of the reaction has usually been decided by the time they exert any beneficial effect they might have.

Hyposensitization with aqueous extracts of Hymenoptera whole bodies or venom is an effective method of preventing serious reactions to subsequent stings. Because of antigenic cross-reactivity between bee, wasp, hornet, and yellow jacket, most allergists treat sensitive patients with extracts of all four insects regardless of which Hymenoptera elicited the previous adverse reaction. Injections of increasing dosage are given weekly until a maintenance dose is reached; in-

jections are then given every one to four weeks depending upon the season of the year and the duration of treatment. There is unequivocal evidence to show that hyposensitization is of benefit in decreasing the severity of the reaction following a subsequent sting. Ninety percent of patients who have received an adequate course of hyposensitization experience a less severe reaction following a subsequent sting than they experienced prior to hyposensitization.⁴ In persons not receiving hyposensitization, progressively more severe reactions occur with subsequent stings in 65% of cases. The duration of hyposensitization therapy necessary to obtain protection and the time during which protection remains following cessation of therapy is still unknown, and it is presently recommended that hyposensitization be continued for an indefinite period in sensitive patients.

Summary

Local or systemic hypersensitivity reactions to Hymenoptera insects (bee, wasp, hornet and yellow jacket) are not uncommon and may result in death. Reactions can occur in both sexes, at any age, and in both atopic and non-atopic individuals. The diagnosis of Hymenoptera sensitivity is made by a careful medical history. Treatment is effective and involves measures to prevent subsequent stings, prompt post-sting treatment of sensitive patients with sympathomimetic drugs and antihistamines, and hyposensitization.

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STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., Professor and Chairman
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LITHOPEDION

Dwayne D. Jones, M.D.*

Introduction and History

The word lithopedion is a descriptive term derived from the Greek lithos, meaning stone, and paidion, meaning child, to designate a fetus that has become stony or petrified. "Stone Children" or lithopedions have aroused interest sufficient to stimulate descriptions, drawings and analyses for at least 400 years. Nesbitt cites Israel Spach whose work in gynecology in 1557 showed a lithopedion in situ in the opened abdomen of a patient. Venetiss in 1595, Albosius in 1597, and Desingeus in 1661 reported lithopedions. In 1846 Kuchenmeister clinically diagnosed a lithopedion after examining an office patient. He paid in advance one-half of the woman's funeral expenses for the right to perform an autopsy; thirty-four years later the patient died and the diagnosis was confirmed.

Not only the medical problems but also the sociological and physiological problems of retained extrauterine pregnancy have been used at least once in the literature as the basis for a fictional plot. Samuel H. Adams, in a novel concerning 19th century medical practice, describes the downfall of a young frontier doctor. The physician makes the diagnosis of pregnancy in the unmarried daughter of the town's leading citizen only to have the young lady fail to deliver at the predicted time. The physician's professional ruin is reversed only after an illegal midnight graveyard autopsy vindicates his original medical judgment. This piece of medical fiction is based on an actual case of lithopedion reported only in the lay literature, *The New Yorker Magazine*, Decem-

ber 10, 1938. There has been a recent case report of lithopedion in *Time Magazine*.

It is the intent of this paper to review the literature pertaining to lithopedions and to report four cases occurring at the University of Arkansas Medical Center from November 1958 through June 1966. Special attention will be paid to the presenting symptomatology, time of retention, method of diagnosis, treatment and morbidity.

Classification

The latter part of the 19th century saw numerous contributions to the descriptive pathology of lithopedions. In 1881 Kuchenmeister classified lithopedions as follows:

1. The lithokelyphos, in which the membranes alone are calcified and form a shell around the fetus.
2. The lithokelyphopedion, in which both membranes and the fetus are calcified.
3. The lithopedion, in which the fetal body alone is calcified after being extruded into the abdominal cavity from an extrauterine gestation.

Krol reported twenty-four stone children in the first category, three in the second and eighteen in the third group. There proved to be some difficulty in using this classification and a variation in classification was suggested by Masson and Simon who used the term lithopedion for the entire group. It is this classification that is in general use today and the one which has been adopted for this paper.

Origin

The vast majority of lithopedions are the result of ectopic gestations which survive more than three months. Extrusion of the fetus into the

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abdomen with varying amounts of covering membranes lays the ground work for the subsequent calcification. Less credibility has been attached to intrauterine lithopedions in this century. There was, however, a case report by Roberts in 1952 of the delivery of a 5 pound, 4 ounce female child with a four-month calcified fetus curled around its occiput.

Several conditions are necessary for the formation of a lithopedion. They have been listed by Oden and Lee as follows:

1. The pregnancy must be extrauterine.
2. The fetus must survive in the abdomen for more than three months, otherwise it is absorbed.
3. The condition must escape medical notice.
4. The products of conception must remain sterile.
5. The necessary conditions for the deposition of calcium must be present—that is, a minimal and sluggish circulation.

If these conditions exist in a patient, then a lithopedion is seen to develop.

Many case reports demonstrate the various combinations which may occur. Krol reported a migratory lithopedion in a 67-year-old patient which had been present for thirty-seven years. Rodenberg reported two cases that presented with rectal lesions secondary to lithopedions. Mathieu reported two cases of intrauterine pregnancy with concomitant lithopedions. Umnova in 1934 reported bilateral lithopedions. Varchavsky in 1938 observed a case of bilateral tubal pregnancy with transformation into one abdominal pregnancy which carried to term and one lithopedion.

Incidence

The incidence of lithopedion formation is only 0.81 percent of extrauterine pregnancies according to Schumann. Masson and Simon reported an incidence of 2.0 percent of all extrauterine pregnancies occurring at the Mayo Clinic from 1903 to 1926. Masson, Simon, and Cave predicted that the incidence of lithopedions would probably decline since physicians are becoming more familiar with the diagnosis of extrauterine pregnancy and early surgical removal. Bainbridge and Shrenk both reported incidences of less than 2 percent of ectopic pregnancies. Stander gave the incidence of ectopic gestations as one in 268 pregnancies. Thus, the incidence of lithopedions is approximately one in 25,000 pregnancies.

Age Range and Time of Retention

Mathieu in 1939 reported a patient age range of from 30 to 100 years with periods of lithopedion retention of from four to sixty years. Steinberg found an age range of from 16 to 100 years. Brodman, Henley and Shivenger, and Anderson have all reported cases of over 25 years retention.

Symptoms

In general, there are no classical signs and symptoms which are of aid in the diagnosis of a lithopedion. Usually the history of an abdominal lithopedion includes four cycles, according to Smith and Bolton. They are as follows:

1. A typical early gestation is followed by symptoms of abdominal catastrophe. The signs may often be mistaken for an abortion. The pregnancy may progress after the symptoms associated with the tubal abortion have subsided. In due time abdominal enlargement and fetal movements may be experienced.
2. Symptoms of labor may occur normally at or near term. Pains usually stop within 24 to 48 hours without delivery. Fetal heart tones and movements are noticed to stop, signifying fetal death.
3. At this stage the fetus assumes a parasitic existence in the maternal abdomen, gradual dehydration occurs and the fetal tissues become infiltrated with calcium salts.
4. Late symptoms vary greatly depending on the organs affected by pressure or erosion by the fetus.

Methods of Diagnosis and Treatment

The diagnosis of lithopedion is dependent on a careful clinical history, aided by the findings of a hard pelvic mass during physical examination and sustained by roentgenography. A roentgenogram of the abdomen often shows parts of a lithopedion much more clearly than would be possible in a normal gestation. Angulation of the spine or other distortion of fetal bones is quite evident. Zurbille suggested that a metallic sound be carefully introduced into the uterine cavity before the roentgenogram is made in order to establish the relationship of the uterine cavity to the fetus. The French were the first to inject a radio-opaque media into the uterus, thus delineating the uterus from the fetus. This procedure has now been adopted by most authorities.

Many lithopedions have remained within the abdomen of their hosts for years without causing symptoms. A significant number, however, have

caused serious disability and distressing symptoms enough to warrant surgical removal as soon as the diagnosis is made. At the present time most authors agree with Rodenberg, who categorically states that immediate surgical removal is indicated upon recognition of a lithopedion.

Destiny and Morbidity of Lithopedions

Gould and Pyle's *Anomalies and Curiosities of Medicine*, published in 1901 lists an extensive bibliography concerning the natural termination of abdominal pregnancies. These include: extrusion of fetal parts through the abdominal wall, and delivery of parts of lithopedions through every body orifice including the mouth. The aforementioned book also lists varying complications such as: rectal perforation, obstruction either by extrensic pressure or by occlusion of the lumen from within, bladder perforation, and eruption through the cul-de-sac of Douglas.

In general, morbidity is dependent upon the position of the lithopedion and its effect on the surrounding organs. It may effect the host in many ways. It may be carried for years as an asymptomatic, benign, foreign body found only at necropsy, or it may initiate distressing, disabling, perplexing symptoms either early or late.

Cases at the

University of Arkansas Medical Center

There have been a total of four documented lithopedions at the University of Arkansas Medical Center from November 1958 to June 1966. (Table I) All of these cases were referred by physicians in the state of Arkansas. During this same time there have been 222 ectopic gestations and 15,956 deliveries. This then gives an incidence of 1.9 percent of ectopic pregnancies or 0.025 percent of deliveries. The ages of patients at diagnosis ranged from 35 to 69 years with a parity of from 5 to 0. Retention time of the lithopedion varied from two to forty years. All of our

four cases were diagnostically confirmed by roentgenogram. Surgical removal was carried out in each patient as the treatment of choice. No difficulty was recorded in the operative reports other than adhesions to bowel and omentum. No evidence of placenta was found in our series. An additional finding in three cases was hypertension. One patient had a Gartners duct cyst, simple cyst of the ovary and a malignant melanoma. A brief resume of our four cases will be given below with special emphasis on history.

Case number one was a 35-year-old colored female, gravida 5, para 4, who was referred to the University of Arkansas Medical Center with a diagnosis of a "trapped" second twin. The patient gave a history of seven months of amenorrhea with fetal movements which subsequently subsided. She stated that her menses resumed after this episode and two and a half years later she again became pregnant. This pregnancy progressed to term and produced a stillborn breech secondary to a prolapsed cord. Examination of the patient post delivery revealed a right lower quadrant mass and a small involuting uterus. Roentgenogram revealed a lithopedion. A laparotomy was performed six weeks postpartum and the calcified fetal mass was removed.

The second patient was a 69-year-old colored female, gravida 5, para 4, who was referred for a "tumor of her womb." She gave a history of six months of amenorrhea forty years prior to coming to the hospital with an enlarging abdomen and fetal movement. The movements subsided and the abdominal mass decreased in size. Examination demonstrated a right lower quadrant mass rising to the umbilicus and x-ray confirmed the diagnosis of a lithopedion. This was surgically removed.

The third patient was a 51-year-old white female, gravida 6, para 5, who was referred with

TABLE I

CASES	AGE & G/P	TIME OF RETENTION	DIAGNOSIS	TREATMENT	MORBIDITY	ADDITIONAL FINDINGS
No. 1	35 G5, P4	2½ years	x-ray	Surgical Removal	Adhesions	Hypertension
No. 2	69 G5, P4	40 years	x-ray	Surgical Removal	Adhesions	Hypertension
No. 3	51 G6, P5	4 years	x-ray	Surgical Removal	Adhesions	Gartners Duct Cyst Simple Cyst Ovary Malignant Melanoma
No. 4	45 G2, P0	2 years	x-ray	Surgical Removal	Adhesions	Hypertension

a chief complaint of a vaginal mass. She gave a history of six months of amenorrhea and a mass in her lower abdomen arising to the umbilicus. Her menses then resumed and she consulted a physician who made the diagnosis of extrauterine pregnancy but no surgery was done. Four years later she came to the University of Arkansas Medical Center where she was found to have a lithopedion, Gartner's duct cyst, and a malignant melanoma. The lithopedion was removed surgically.

The fourth patient was a 45-year-old colored female, gravida 2, para 0, ab 1, who was referred to University Medical Center with "pain in her lower abdomen." She was a poor historian, but gave a history of some "kicking" in her "belly" two years prior to being seen. She was found to have a lithopedion on x-ray which was surgically removed.

Discussion

The discovery of a lithopedion in the 20th century implies that the patient involved has had no medical attention, or that some past mistake in medical judgment has been made. The incidence of lithopedion formation will probably diminish due to increasing recognition and immediate surgical management of ectopic pregnancy. There have been a total of less than 300 lithopedions reported in the world literature. Our incidence of lithopedions is 1.9 percent of ectopic pregnancies and is comparable to the reported incidences in the literature. Our comparison showed an incidence of one in 4,000 deliveries which is higher than the one in 25,000 deliveries reported in the literature.

Age, gravidity and parity seem to have no effect on the occurrence of lithopedions. It is interesting to note that three of our four patients were multiparas. Retention time in these patients varied from thirty months to forty years.

Three of our patients presented a history compatible with abdominal pregnancy but none gave a history of an abdominal catastrophe suggesting a ruptured or hemorrhaging ectopic gestation. Two of the four patients experienced fetal movement which subsequently stopped; but none had any symptoms of labor. One patient became pregnant again, delivered and was referred because of a "trapped second twin." Only one patient complained of pain which could be attributed to pressure on the bowel by the lithopedion. Two patients complained of an abdominal mass and

one complained of a vaginal cyst. None of our patients provided the classical history as described in the literature.

In all four of our patients an abdominal mass was found on physical examination, and in all four the diagnosis was confirmed on roentgenogram of the abdomen. In accordance with the recommended therapy in the literature all of our patients were operated and the lithopedion removed.

It is interesting to note that the only surgical problem encountered was adhesions. All of the specimens were located in the pelvis and had not encroached upon viscera; this probably accounted for the lack of symptomatology.

Conclusions

From the review of the literature and a study of the four cases occurring at the University of Arkansas Medical Center, the following conclusions may be drawn.

1. Lithopedions arise from ectopic pregnancies which are undetected and survive for three months or longer—probably tubal abortions with transient viability.
2. The incidence of lithopedions is 1.9 percent of ectopic pregnancies at the U.A.M.C. This is comparable to the incidence reported in the literature.
3. A careful history should lead to the diagnosis of lithopedion. Three of our four patients gave histories of a pregnancy which did not terminate in delivery.
4. When the diagnosis of a lithopedion is made, a roentgenogram of the abdomen should be performed. This procedure revealed a lithopedion in all four of our cases.
5. Treatment is surgical removal of the calcified fetal component.

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Study of Adrenal Corticoid Function in Acromegaly

M. S. Roginsky (Meadowbrook Hosp, Long Island, NY) J. C. Shaver, and N. P. Christy *J Clin Endocr* 26:1101-1108 (Oct) 1966

Adrenal cortical function was studied in 13 patients with acromegaly. Some evidence of adrenal corticoid hyperfunction was detectable in a majority of acromegalic subjects, despite treatment by conventional pituitary radiation. The most common findings were elevated 24-hour urinary 17-ketogenic steroids and elevated secretion rate of cortisol as determined by a standard isotope dilution method. Suppression of urinary steroid excretion by administered corticosteroid was inadequate in the nine patients so studied, and other indices of adrenal cortical function—response of plasma cortisol levels to corticotropin and diurnal variation of plasma cortisol levels—were generally normal. In a single control subject who received 5 mg of purified human growth hormone daily for ten days, there was no significant change in any index of adrenal corticoid func-

tion. The secretion rate of cortisol remained essentially the same. No evidence could be adduced to support the idea that excessive secretion of growth hormone directly stimulated the adrenal cortex to secrete increased amounts of cortisol.

Microembolic Complications of Atherosclerosis

J. W. Retan and R. Miller (1701 Ninth Ave S, Birmingham) *Arch Intern Med* 118:534-545 (Dec) 1966

An autopsy series and case reports of patients with both atheromatous and platelet-fibrin emboli as complications of atherosclerosis are reviewed. Such emboli may, in some patients, cause acute or chronic renal failure, retinal or cerebral ischemic disease, peripheral vascular insufficiency, pancreatitis and many other gastrointestinal disorders, paroxysmal, sustained, or accelerated hypertension, myocardial infarction, and a disease resembling polyarteritis. A patient is presented in whom the antemortem diagnosis of atheromatous embolization was supported by percutaneous renal biopsy.



ELECTROCARDIOGRAM

OF THE MONTH

AGE: 24 SEX: F BUILD: Stocky BLOOD PRESSURE: 120/78

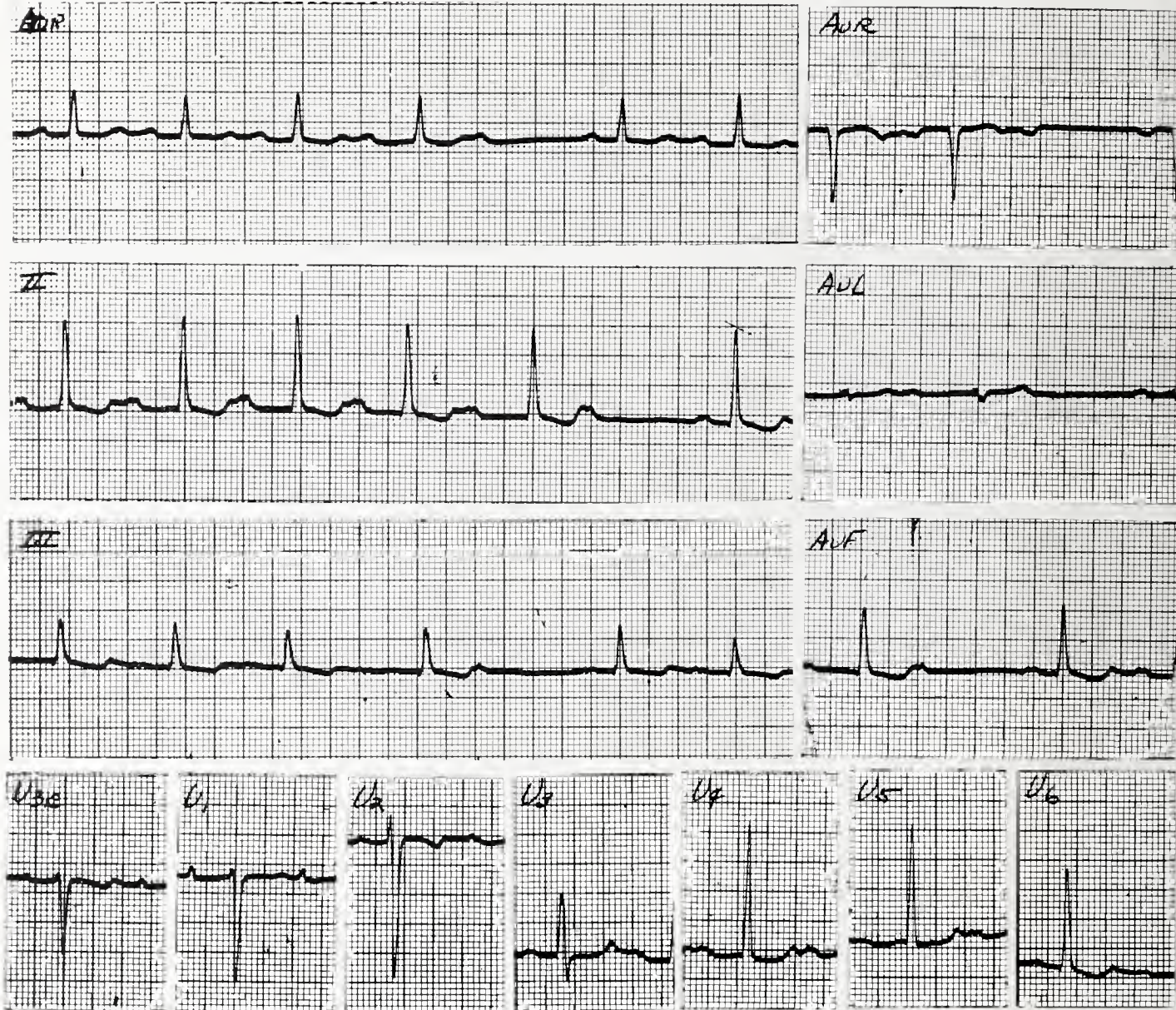
CARDIAC DIAGNOSIS: Acute rheumatic fever (?) Chorea.

OTHER DIAGNOSES: None.

MEDICATION: None.

HISTORY: Previous rheumatic fever (childhood). Recent onset of chorea possible.

ANSWER ON PAGE 441



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 441



HISTORY: Twenty-nine year old mentally retarded white female with 15 lb. weight loss and a mass in the upper abdomen which had been increasing in size.



RABIES IN ARKANSAS 1966

Harvie R. Ellis, D.V.M.

Rabies, the oldest known and most dreaded of all animal diseases transmissible to man, continues to present a difficult public health problem in Arkansas. The records maintained by the Arkansas State Department of Health indicates that 94 cases of animal rabies were reported during the year 1966. This figure is only an index to the total number of cases because other factors lead us to believe the disease is very much under reported.

There were three counties in particular which presented a rather high incidence of animal rabies. In Northwest Arkansas, Washington County had a high incidence of skunk rabies; in South Arkansas, Union County had a high incidence of fox rabies; and in Central Arkansas, Saline County also had a rabies problem in foxes. Other cases of animal rabies occurred over a wide area extending from the northern to the southern border.

The overall incidence of animal rabies in Arkansas has declined in the past ten years, but there remains a sufficient amount of the disease widely distributed over the State which continues to be a real threat to the health of our citizens. The anti-rabies vaccination programs conducted by veterinarians for pet animals has been very effective in reducing the disease in dogs and cats in areas where the procedure is employed annually. There has been an alarming increase of rabies in certain species of wildlife within the State of Arkansas. This increase of rabies in skunks, foxes, bats and other wild animal species makes it more difficult to protect our people from these animals that usually come out in the open only when they are diseased. Thus, the change in the national rabies picture from a dog to a wildlife problem is reflected in Arkansas.

In the past, rabies was considered a disease of city dogs with an occasional farm animal becom-

ing infected. The buildup of rabies in the various wildlife species along with the expansion of homes into the suburbs and rural areas increases the danger of exposure of this dreadful disease to man, his pets and domestic animals.

Rabies in the wildlife of a community must be given serious consideration because it may spread to pets, domestic animals and humans at any time. Dogs and cats may be bitten by rabid wild animals without the owners being aware of it. A rabid skunk or rabid bat may very easily gain entrance to a yard or pen of dogs any hour of the day, expose one or more animals to rabies and depart without ever being observed. For these reasons all pets should be adequately and properly immunized against rabies by a veterinarian, not a lay person. Furthermore, all pet animals should be revaccinated against rabies annually so as to maintain a high protective level of immunity. It is advisable to give hunting dogs a booster injection of rabies vaccine in six months. This is especially important if the dog is to be hunted in areas where wildlife rabies is known to exist. All other pet animals should be kept out of the woods and fields where rabid wild animals may attack them.

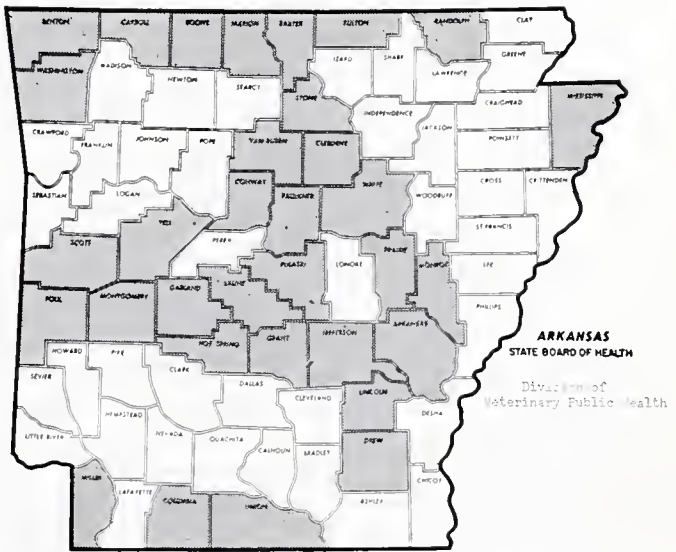
It is most important that both physicians and veterinarians possess extensive and current knowledge relative to the incidence of rabies in animals, the communities involved, and special information concerning known problem areas. Only through the use of such information can a physician properly and safely advise or treat a patient with an animal bite exposure which occurs in Arkansas. Likewise, the veterinarian must possess such information before a client with an animal rabies problem can protect his pets, his livestock and the health of his family. The Arkansas State Department of Health, Little Rock, Arkansas, maintains such statistics about rabies on a daily,

monthly and annual basis. The medical and veterinary professions of Arkansas make constant use of the consultative service in their efforts to properly evaluate and resolve many serious rabies problems and situations.

The recent literature advises that old information is being reevaluated and research is being conducted on many phases of rabies. For example, research workers have found evidence of the presence of "rabies inhibiting substance," in animals that die of rabies, which reduces the development of negri bodies in the brain cells and may render the virus nonlethal for mice when inoculated intracerebrally, the mouse test was found not to be definitive for the detection of rabies virus in salivary glands or brains. The article further stated that the "rabies inhibiting substance" (RIS), when present, did not appear to interfere with the immunofluorescent staining test. Fortunately, the Arkansas State Hygienic Laboratory, Little Rock, Arkansas, uses the recommended combination tests for rabies which is the histochemical staining and the immunofluorescent staining tests.

A great deal of very important and helpful information can be gained from the tabulation and shaded map about the current rabies situation in Arkansas. The reported and confirmed cases of animal rabies by species are listed for the past five years. The shaded map indicates the specific counties in Arkansas which reported one or more cases of animal rabies during the year 1966. The *Arkansas Animal Morbidity Report*, which is published each month by the Arkansas State Department of Health, provides detailed information on all animal diseases occurring in the State, especially those diseases that are transmissible to man.

SPECIES	ANIMAL RABIES IN ARKANSAS				
	1962 CASES	1963 CASES	1964 CASES	1965 CASES	1966 CASES
Bat	—	17	13	7	4
Bobcat	—	2	—	—	—
Cat	5	5	5	1	5
Cattle	21	18	31	16	15
Dog	10	15	12	20	6
Fox	28	28	37	20	28
Goat	—	—	1	—	—
Horse	—	—	1	1	—
Mule	1	—	—	1	—
Raccoon	1	1	1	1	—
Skunk	4	11	49	32	36
Wolf	—	—	2	—	—
Total	70	97	152	99	94



The shaded portions of this map indicate the counties that have reported one or more cases of rabies during 1966.





EDITORIAL

THE AORTIC VALVE AREA

Alfred Kahn, Jr., M.D.

Medical textbooks have emphasized valvular heart disease as a teaching discipline for years. The medical student's first acquaintance with clinical medicine is the auscultation of the heart, and perhaps his greatest triumph in this area is the recognition of heart murmurs as aortic stenosis. Later came the recognition that different pathological processes may produce this lesion.

Progress in cardiac surgery has stimulated the development of diagnostic techniques, as catheterization, indicator-dilution techniques, scans for radio-active material, etc. As a result, many new cases of unusual heart lesions in living patients have been discovered. With reference to aortic valvular stenosis, it is rather astonishing to find not alone articles on "conventional aortic valvular stenosis", but also supravalvular aortic stenosis and subvalvular stenosis.

In an article entitled "The Clinical Spectrum of Supravalvular Aortic Stenosis", (Archives of Internal Medicine, Volume 118, Page 553, 1966), Myers and Willis report on four cases and review the pertinent facts concerning this lesion. The pathologic findings were divided into three general groups: annular localized constriction, diaphragm type and the band or cord-like lesion. The authors feel that a better classification is to simply call the lesion localized or diffuse. Supraventricular aortic stenosis may be associated with other congenital lesions. These include other cardiac lesions as septal defects, etc, with pulmonary artery lesions as stenosis, with Marfan's syndrome, etc.

The laboratory diagnosis of supravalvular aortic stenosis is all important and the two most important tools are cardiac catheterization and angiocardiology. A small aortic knob on the x-ray films and the changes of left ventricular hypertrophy on electrocardiography are helpful

hints.

The clinical characteristics include an elfin facies, higher blood pressure on the right brachial and carotid arteries than on the left, and a systolic, loud ejection type murmur.

The only treatment for supravalvular aortic stenosis is surgery. The recognition of this disorder may be difficult. In one case of the authors, there was no murmur to provide a clue.

Edwards' "Pathology of Ventricular Outflow Tract Obstruction," (Circulation, Volume 31, Page 586, April, 1965), discusses not alone supravalvular lesions but he also describes the other valvular and subvalvular disease. Edwards has a particularly interesting brief resume of the pathology in supravalvular disease; he points out that the coronary arteries are often grossly injured by the high hydraulic pressures and show medial hypertrophy and premature arterio-sclerosis. The valvular cusps are also often diseased in supravalvular obstruction with adhesion of adjoining cusps.

Aortic valvular stenosis is the classic disease widely taught in the second year of medical school in both physical diagnosis and pathology. Edwards classifies the lesion depending on age. In adults, the lesions are: fibrous type, either congenital or acquired and the calcific type. The fibrous acquired type is due to rheumatic disease; the congenital type is associated with a "unicommissural valve." Strangely, the calcific type usually depends on congenital anomaly rather than being the end result of rheumatic disease. In infants and children, aortic valvular lesions are usually congenital and the left ventricle may be hypoplastic. The clinical characteristics of this disorder are in almost every text.

Many articles are now appearing in the literature on Subvalvular aortic stenosis. Edwards commented on the complexity of the subject especially

in trying to make a classification; his main categories are: anomalies of the left ventricular outflow tract, diffuse or multifocal involvement of the ventricular myocardium, lesions of the mitral valve, and complexes of anomalies. In each of these categories are subtopics:

Obviously with so many possible etiological possibilities, the treatment of subvalvular aortic stenosis is naturally varied. Aside from the types due to a membrane and from the mitral valve is the group due to muscular hypertrophy, either

local or diffuse. Braunwald has reviewed the therapy of this interesting problem.

Perhaps most important in editorializing on this subject is to point out that to an older generation of physicians that all aortic obstructive phenomena is not simple valvular disease but that the lesion may be supravalvular or subvalvular. Furthermore, adequate diagnostic means are now available to recognize these disorders; the treatment can be performed by competent cardiac surgeons but obviously it must be varied to suit the cause.

ANSWER—Electrocardiogram of the Month

RATE: Approx. 70 **RHYTHM:** Sinus with variable incomplete A-V block and dropped beats.

PR: Variable, prolonged **QRS:** .08 sec.
QT: .40 sec.

SIGNIFICANT ABNORMALITIES:

- P waves notched, slightly prolonged.
- P-R interval prolonged, variable, with occasional dropped beats.
- Delayed intrinsicoid, left precordial leads.

INTERPRETATION: Abnormal.

Variable incomplete A-V block with dropped beats (Wenckebach periods). Left atrial and ventricular hypertrophy.

COMMENT: Clinical course of patient indicated recurrent attacks of rheumatic fever and evidence of mitral valve involvement.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Trichobezoar of stomach and duodenum.

X-RAY FINDINGS: There is a mass occupying almost the entire lumen of the stomach which retains a coating of barium. There is direct continuity between the mass in the stomach and that in the duodenum.



UNDERGRADUATE COLLEGE IN RELATION TO
MEDICAL SCHOOL ACCEPTANCE
AND SUCCESS

Among the 100 colleges and universities providing the largest number of entering first-year medical students in 1964-65 were 25 schools whose applicants had an average acceptance rate of 69.7 per cent. This compares with the national acceptance rate for that year of only 47.2 per cent.

Information concerning these 25 schools, presented in Table 1, indicates that their average applicant filed 5.8 applications as compared with a national average of 4.4. The range in number of applications for these schools varied from 1.3 per applicant at a southern state university, sending most of its students to its own medical school, to 10.2 per applicant at a northern private university, whose students entered a wide variety of medical schools.

TABLE 1
TWENTY-FIVE COLLEGES AND UNIVERSITIES PROVIDING A SIGNIFICANT PROPORTION OF
APPLICANTS ACCEPTED BY MEDICAL SCHOOLS IN 1964-65
(Ranked by percentage of applicants receiving medical school acceptances as shown in boldface)

Undergraduate College or University*	Number of Applicants	Aver. No. Appli- cations	Accepted Applicants		Medical School Entrants	
			No.	%	No.	%
†Rice University	47	3.3	41	87.2	40	85.1
†Brandeis University	37	10.2	31	83.8	30	81.1
†Carleton College	39	4.3	32	82.0	31	79.5
†Amherst College	46	5.8	35	76.1	34	73.9
†University of Chicago	75	4.9	56	74.7	54	72.0
†Harvard University	261	6.1	195	74.7	171	65.5††
Princeton University	119	5.9	88	73.9	78	65.5††
†Williams College	48	6.9	35	72.9	32	66.7
†Columbia University	220	7.6	160	72.7	156	70.9††
Brown University	83	6.2	59	71.1	55	66.3
Yale University	141	6.0	100	70.9	97	68.8††
†Davidson College	68	3.1	48	70.6	48	70.6
†Vanderbilt University	85	3.2	60	70.6	55	64.7
†College of the Holy Cross	85	7.2	59	69.4	58	68.2
Union College of New York	45	8.2	31	68.9	31	68.9
†Muhlenberg College	38	5.0	26	68.4	26	68.4
†Stanford University	188	5.6	124	66.0	117	62.2††
University of North Carolina	119	3.2	77	64.7	74	62.2††
†Cornell University	202	7.8	129	63.9	123	60.9††
Massachusetts Inst. of Tech.	44	6.9	28	63.6	26	59.1
†Duke University	130	4.7	82	63.1	77	59.2††
St. Peters College	40	7.4	25	62.5	24	60.0
Washington University	68	4.0	42	61.8	39	57.4
†Wesleyan University	52	5.5	32	61.5	30	57.7
University of Tennessee	57	1.3	35	61.4	33	57.9
Total	2,337	5.8	1,630	69.7	1,539	65.8
Total for 1964-65	19,168	4.4	9,043	47.2	8,571	44.7

*Selected from the top 100 suppliers as having the highest proportion of applicants receiving medical school acceptances.
†Among top 25 schools providing a significant proportion of male graduates as medical entrants, 1964-65. (See Table 2 of Datagrams,

Vol. 8, No. 7, January 1967)
††Among top 25 schools providing the largest number of entering first-year medical students, 1964-65. (See Table 1 of Datagrams, Vol. 8, No. 7, January 1967.)

Data obtained in the recently published study of medical student attrition* has shown that the number of medical school entrants provided by an undergraduate college or university seems to have a bearing on success in medical school. Table 2 and Figure 1 present a comparison of the success in medical school of more than 75,000 students in 10 entering classes according to the average annual number of entrants provided by their undergraduate colleges and universities. The dropout rate for students coming from schools providing 60 or more medical school entrants per year is only 6 per cent whereas total attrition for schools providing an average of 1 to 9 entrants annually is 12 per cent. These findings illustrate the pertinence of this study for premedical students, counselors, parents, college administrators, and medical school admission officers.

TABLE 2

Average No. of Entrants per Undergraduate College	Per cent of Colleges Providing Entrants	Average No. of Entrants Provided	Per cent Academic Dropouts	Per cent Nonacademic Dropouts	Per cent Total Dropouts
60.0 or more	2.1	2,154	3.44	2.99	6.44
10.0-59.9	13.2	3,599	4.79	3.23	8.02
1.0-9.9	38.0	1,615	7.49	4.75	12.24
0.9 or less	46.7	177	10.28	6.95	17.22
Ann. Avg.	100.0	7,545	5.11	3.58	8.69
1949-58	1,170	75,453	3,857	2,699	6,556

MEDICAL STUDENT ATTRITION IN RELATION TO THE AVERAGE NUMBER OF ENTRANTS PROVIDED BY UNDERGRADUATE COLLEGES, 1949-58

ENTRANTS PER UNDERGRADUATE COLLEGE

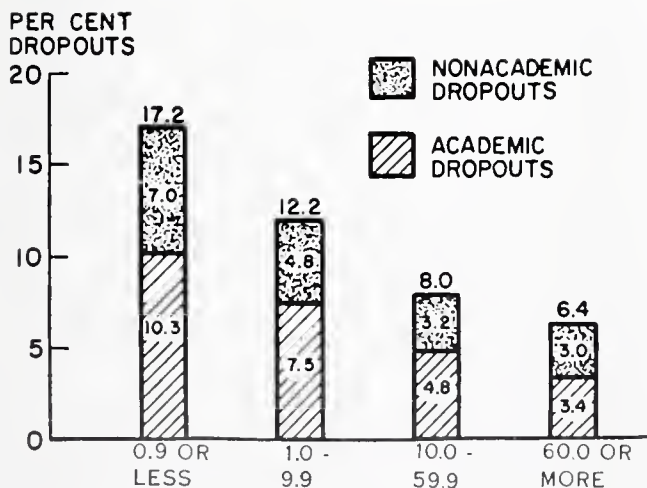


FIGURE 1

Medical Student Attrition in Relation to the Average Number of Entrants Provided by Undergraduate Colleges, 1949-58.

*JOHNSON, D. G., and HUTCHINS, E. B. Doctor or Dropout?: A Study of Medical Student Attrition. *J. Med. Educ.*, 41:1097-1269, 1966.

The Month in Washington

Washington, D. C.—The Johnson administration's health legislation program this year includes proposals to expand medicare and limit medicaid, and more money is being requested for most federal activities in the health field.

President Johnson also has asked Congress for anti-air pollution legislation and stricter anti-water measures.

The President termed medicare "an unqualified success," but added "there are improvements which can be made and shortcomings which need prompt attention." He proposed that the 1.5 million disabled persons receiving other Social Security and railroad retirement benefits also be included under medicare. He said "certain types of podiatry" should be included in medicare benefits. He further directed the Secretary of Health, Education and Welfare "to undertake immediately a comprehensive study of the problems of including drugs under medicare."

Johnson noted that only 415,000, less than half of the 850,000 total, of nursing home beds in the nation met federal standards and that only 3,000 of the total of 20,000 nursing homes had qualified under medicare.

To move toward correcting this situation, he wants more money for more health facilities and better health care institutions for the aged.

The President called for extension of existing legislation to improve state and local health planning for the elderly and to launch special pilot projects to bring comprehensive medical and rehabilitation services to the aged.

As for limiting medicaid (Title XIX of Social Security), Johnson said that a state should not be permitted to have its income ceilings for medical assistance more than 50 per cent higher than the level set for welfare assistance. The medicaid program, which now gives states carte blanche as to income standards, became the subject of widespread controversy after New York set an eligibility standard of \$6,000 net income for a family of four.

Twenty-eight states and jurisdictions had medicaid programs by Jan. 1, 1967, and it is estimated that 30 will have them by July 1, 1967, and 48 by July, 1968. Title XIX programs replace the medical vendor payment part of existing federal-state welfare programs, including Kerr-Mills.

The administration's fiscal 1968 budget calls for general fund expenditures of \$11.7 billion for

carrying out existing and proposed new programs of the Department of Health, Education and Welfare (HEW). This is an increase of \$1.0 billion over current year spending. In addition to the general fund outlays on behalf of HEW, the budget forecasts benefit payment and administrative expenditures in 1968 from Social Security trust funds in the amount of \$31.0 billion, an increase of \$5.5 billion over 1967.

Health program highlights of the HEW budget include:

—A 5 per cent increase, to \$1.45 billion, for medical research.

(Dollars in Millions)

	1967	1968
—Food and Drug Administration	\$ 64	\$ 68

The \$4 million increase will be used to: (1) expedite the review and surveillance of new drugs for safety and efficacy, (2) expand extramural research into the side effects of oral contraceptives, (3) expand the program established under last year's Drug Abuse Control Amendments, and (4) carry out the new Fair Packaging and Labelling Act. The 1968 budget will also emphasize regulation of barbiturates, amphetamines, and other drugs affecting the central nervous system, and a step-up in FDA's food standards program.

—Regional Medical Programs—\$16 million.

It is expected that grants will be awarded to regional groups in 1968 primarily to support a rapid expansion throughout the nation of operational activities begun during 1967, and an expansion and supplementation of planning activities begun in 1966. Emphasis will be on regional planning and coordination of medical resources, continuing education for doctors and other medical personnel, and the rapid distribution of new knowledge and techniques.

—The total Children's Bureau budget request for fiscal year 1968 is almost \$246 million, an increase of about 5 per cent or about \$11 million over 1967. The largest share of the approximately \$11 million increase is \$5 million additional for special project grants for health of school and pre-school children.

* * *

The Army and Navy will draft 2,118 medical doctors and 111 osteopaths starting in July.

The Defense Department said Selective Service was requested to provide the doctors because an insufficient number had volunteered to be able

to replace men leaving service after two years' active duty. The Air Force is meeting its need and will not participate in the summer draft call.

Of the 2,229 doctors to be drafted, 1,537 will go on duty in the Army and 692 in the Navy.

Last April, the Armed Forces issued new regulations under which doctors of osteopathy who volunteered for service could be commissioned. The Pentagon said fewer than a dozen had volunteered, however.

* * *

New clinical studies are being permitted with DMSO (dimethyl sulfoxide) under guidelines established to provide the maximum protection possible for patients receiving the drug.

Dr. James L. Goddard, Commissioner of Food and Drugs said:

"A comprehensive evaluation of all data available to us on DMSO has been completed. Indications that the drug may be of value in treating certain conditions justify further clinical investigations."

He warned, however, that these trials must be carefully planned and controlled.

"Serious toxic signs are observed in animals used in DMSO experiments," Goddard said. "Since these effects vary considerably among different species, it is possible that the drug could be less toxic in humans. But this cannot be taken for granted."

Occurrences of eye changes in DMSO-treated animals led the Food and Drug Administration to suspend clinical trials with the drug a year ago.

RESOLUTIONS



WHEREAS, the recent death of our esteemed colleague, Dr. Daniel R. Hardeman, has caused all of the members of this Society to be grieved; and

WHEREAS, Dr. Hardeman was for thirty-three years a member of this Society, devoting his interests and efforts to the maintaining of the practice of medicine as a free enterprise; and

WHEREAS, he will be missed by his patients, his family, his church and his many friends in the community;

BE IT THEREFORE RESOLVED;

THAT, the Members of this Society express their heartfelt sympathy to Dr. Hardeman's family on their great loss; and

THAT, a copy of this resolution be forwarded to the family; and

THAT, this Resolution be made a part of the permanent records of this Society; and

BE IT FURTHER RESOLVED;

THAT, a copy of this Resolution be forwarded to the Journal of the Arkansas Medical Society for publication.

By Action of the Memorials Committee
T. Duel Brown, M.D., Chairman
John McCollough Smith, M.D.
Lucas Byrd, M.D.



O B I T U A R Y

Dr. Julius H. Hellums

Dr. Julius H. Hellums, of Dumas died January 17, 1967, following a short illness. He was born on March 17, 1908, at Grady, Arkansas, and he was the son of Mrs. Alma Chapman Hellums and the late Julius Hellums. He was graduated from Hendrix College and the University of Arkansas School of Medicine and served his internship at Arkansas Baptist Hospital in Little Rock and Charity Hospital in New Orleans. He came to Dumas to practice medicine in June of 1934 and had practiced there continuously except for the period during which he served in the Armed Forces. During World War II, he served as an officer in the Army Medical Corps and rose to the rank of Lieutenant Colonel. In service from June 1941 to November 1945, he had overseas duty in Peru and Guatemala. He had remained active in the Army Reserves. His civic activities in Dumas were numerous and in recognition of civic leadership, Dr. Hellums was chosen as 1955 Man of the Year. He was a charter member and past president of the Dumas Lions Club and was active in the Chamber of Commerce in which he

had also served as president. He had served on the Dumas School Board, retiring from office in 1959, and was board president at the time of his resignation. A member of First Methodist Church of Dumas, he had served on the Board of Stewards of the church and on many church committees. Dr. Hellums was instrumental in the drive to build the Desha County Hospital in Dumas and served as a chief of staff at the hospital for a number of years as well as being a board member. He had served as president of the Desha County and Southeast County Medical Societies. He was a member of the Arkansas Medical Society and the American Medical Association. For many years he had worked in the educational program of the American Cancer Society, volunteering his time to show films and answer questions, and had served as president of the state chapter for three consecutive terms. He was a fellow in the American and International Colleges of Surgeons. His professional fraternity was Phi Chi. Surviving are his widow and one daughter.

Dr. Charles J. Watkins, Sr.

Dr. Charles J. Watkins, Sr., of Little Rock, died on January 27, 1967, at the age of 43. Dr. Watkins was born at Little Rock, son of the late Dr. John Gibson and Zilpah Barrow Watkins. He attended Little Rock public schools and was a graduate of the University of Arkansas School of Medicine. He was a member of St. Paul's Methodist Church, Pulaski Heights Masonic Lodge 673, Scimitar Shrine Temple, Royal Order of Jesters Court 12, Pulaski County Medical Society, Arkansas Medical Society, and the American Medical Association. Survivors include his widow, one son and one daughter.



Electrophoretic Pattern of Hemoglobin in Newborn Babies and Abnormalities of Hemoglobin F Synthesis in Adults

F. Vella and T. A. Cunningham (Depts of Biochemistry and Pathology, Univ of Saskatchewan, Saskatoon) *Canad Med Assoc J* 96:398-401 (Feb 18) 1967

Routine electrophoretic analyses on filter paper and starch gel in an alkaline or neutral medium revealed no abnormal hemoglobin fractions in the blood of 600 newborn infants or their mothers.

Trace amounts of hemoglobin Bart's were noted in many of the newborn bloods when the starch gels (phosphate buffer pH 7) were stained with a benzidine/H₂O₂ reagent. In one infant precocious stoppage of synthesis of hemoglobin F was postulated to account for the small amounts of this hemoglobin that were found in a cord blood specimen. Analysis of 15,000 blood samples from

adults revealed two instances in which the hemoglobin F level was 20% and 35%, respectively. The former was attributed to hereditary persistence of hemoglobin F, while the latter was associated with acute leukemia. In an addendum, the finding of an infant with an abnormal hemoglobin variant, resembling in many of its properties hemoglobin F_{TEXAS}, is reported.



PERSONAL AND NEWS ITEMS

Dr. Saltzman Re-Elected

Dr. Ben N. Saltzman of Mountain Home was re-elected chairman of the Council on Rural Health of the American Health Association, at the council's annual meeting in January at Chicago. Dr. Saltzman has served on the council for eight years. While in Chicago he also attended the Socio-Economic Congress of the American Medical Association as Arkansas' representative to the council.

Dr. Campbell Addresses Lions

Dr. Gilbert Campbell, Professor and Head of the Department of Surgery at the University of Arkansas Medical Center, recently addressed the North Little Rock Lions Club on the relatively short history of heart surgery.

Dr. Hard Elected

Dr. John W. Hard of Blytheville has been elected president of the Blytheville Chamber of Commerce.

Symposium Held

A symposium on "Tuberculosis and the General Hospital" was held in February at the Little Rock Veterans Administration Hospital under the sponsorship of the Division of Tuberculosis Control of the Arkansas State Health Department. The symposium was for staff and board members of Arkansas hospitals. Taking part in the symposium were: Dr. Robert Abernathy, Dr. Joe Bates, Dr. J. T. Herron, Dr. William B. Hope, Dr. Dieter Koch-

Weser, Dr. Carl Muschenheim, Dr. William E. Potts, Dr. W. Paul Reagan, Dr. John Satterfield, and Dr. John Schultz.

Dr. Johnson Retires

Dr. I. R. Johnson of Batesville retired from the active practice of medicine on January 31, 1967. Dr. Johnson has practiced in Batesville since 1916. He is 78 years old.

Dr. Robinson Appointed

Dr. Guy U. Robinson of Dumas has been appointed to a one-year term of the Committee of Insurance of the American Academy of General Practice.

Board of Health Elects Officers

Dr. C. Lewis Hyatt of Monticello has been elected president of the Arkansas State Board of Health. Dr. Warren Riley of El Dorado was elected vice president. Dr. Hyatt, who was vice president last year, succeeds Dr. E. D. McKnight of Brinkley. Dr. Hyatt has served on the Board since 1958. Dr. J. T. Herron is the State health officer.

Dr. Guthrie Discusses Tour

Dr. James Guthrie of Camden spoke at a Rotary Club luncheon in Camden in February. He told of his two-month tour aboard the hospital ship "Hope" in Nicaragua. Dr. John Ruff of Camden, Rotary program chairman for February, introduced Dr. Guthrie.

Dr. Wyckoff to Conway

Dr. William H. Wyckoff has established an office in the Doctors' Clinic in Conway for the practice of ophthalmology.

Dr. Baker is Speaker

Dr. Donald B. Baker of Fayetteville was a speaker on Vocational Day at a Fayetteville high school recently. He discussed the subject of "Medical Education."

Dr. Harris Moves to England

Dr. Willie Harris, formerly of Newport, moved to England, Arkansas, on March 1st. He has purchased the England Hospital, which he will operate in connection with his practice.

Saltzman's Participate in International Meeting

Dr. and Mrs. Ben N. Saltzman of Mountain Home attended the Rotary 1966 Caribbean-Gulf of Mexico International Conference at San Juan, Puerto Rico in November 1966. Dr. Saltzman is Past Rotary International Director. Both Dr. and Mrs. Saltzman were on the program for the conference, speaking before approximately 1,500 people — international representatives of Rotary. Their pictures were published in the Rotary magazine with world-wide circulation.

Drawing Blood for Alcohol Test

The headquarters of the Arkansas Medical Society was recently queried regarding whether or not a physician is legally protected if he draws a blood alcohol without the patient's consent, even though the test was for medical reasons. The question was extended to the legal status of the physician if he draws a blood alcohol at the request of the police. The Society's attorney, Mr. Eugene Warren, replied, "I would not advise any physician to draw blood from a person without consent from that person. We do not have any laws protecting the physician who draws blood from a person without that person's consent, and I doubt that such a statute would be constitutional. There are a great many cases in the books involving the question of whether blood drawn with consent for the purpose of determining drunkenness violates the unreasonable search and seizure of the constitution. Some cases hold "yes" and some cases hold "no." I am not familiar with any cases, however, which authorize physicians to violate a

person's privacy by drawing blood from him without his consent, even though by request of the police."

Recently, a news item in the Arkansas Gazette quoted the Arkansas Attorney General's office as saying that consent for a blood test was not necessary. The article went on to quote an assistant attorney general from New Mexico on the subject. The Medical Society's attorney advises that he feels that the attorney general's opinion was written from the standpoint of the admissibility of evidence and that he (Mr. Warren) still maintains that a physician has no right to take blood from anyone without that person's consent; provided, of course, the person is capable of consent and in the absence of a court order. Physicians are advised to obtain the consent of anyone before making a blood test, even though the police request it.

Dr. Whittaker Honored

The Sebastian County Medical Society honored Dr. L. A. Whittaker on February 14th at a dinner meeting held in the Fort Smith Municipal Auditorium. The dinner, held jointly with the Woman's Auxiliary to the Sebastian County Medical Society, was in recognition of Dr. Whittaker's becoming president of the Arkansas Medical Society and his leadership in Sebastian County's and Western Arkansas' medical and civic affairs. The program was a "This is Your Life" type of review of Dr. Whittaker's life and career. He was presented gifts as a token of the esteem of the doctors of the area. Physicians and their wives from Sebastian and the surrounding counties were in attendance.

HOSPITALS ELECT STAFF OFFICERS Sparks Memorial Hospital, Fort Smith

Dr. R. L. Sherman has been elected to retain his position as chief of staff for 1967 at Sparks Memorial Hospital. Dr. Harley Darnall was elected to the position of vice chief and chief of staff elect. Dr. Charles Floyd was elected secretary and Dr. Ralph Kramer was elected to the credentials committee. Drs. Art Martin and A. B. Hathcock were elected to terms on the utilization committee.

Conway Memorial Hospital, Conway

Dr. Sam V. Daniel is the new chief of staff at Conway Memorial Hospital. Dr. Bob G. Banister is vice chief, and Dr. Ann Poindexter is secretary.

COUNCIL MINUTES**February 12, 1967****Hotel Sam Peck, Little Rock, Arkansas**

The Council of the Arkansas Medical Society met at 12:00 noon on Sunday, February 12, 1967, in the Hotel Sam Peck, Little Rock, Arkansas. Present were: Thomas, Whittaker, Norton, Shuffield, Saltzman, Fairley, Raney, Gray, Bell, Millar, Burton, Kennedy, McCrary, Payton Kolb, Morrison, Fowler, Long, Kahn, Snodgrass, Brown, E. Smith, James Kolb, Johnston, Hyatt, Ellis, Chudy, Price, Herron, Easley, John Satterfield, William A. Hudson, Sam Kuykendall, W. Duane Jones, Harley Darnall, Bernard Capes, Kenneth Siler, Paul Reagan, Mr. Eugene Warren, and Mr. Schaefer.

The Council transacted business as follows:

I. Decided, upon the motion of McCrary and Saltzman, not to send a representative to the American Medical Association Congress on Environmental Health Management in New York on April 24-26.

II. Discussed sending a representative to the American Medical Association Conference on Mental Health to be held in Chicago, February 24-25. The Council voted to accept Dr. Payton Kolb's offer to represent the Society at his own expense.

III. In the absence of Dr. W. R. Brooksher, chairman of the Budget Committee, Dr. Saltzman, a member of the committee, presented the budget proposal for 1967 as approved by the Budget Committee. Upon the motion of Saltzman and Whittaker, the Council approved the budget.

IV. Drs. Thomas, Whittaker, and Norton reported on conferences held between the Executive Committee of the Council, the Welfare Commissioner, and the Governor of the State. The subject of the conferences was the payment of usual and customary fees for the care of welfare clients. They reported that the Commissioner and the Governor were both in agreement that doctors should be paid on the basis of their usual fees. An effort will be made by the State to achieve that end if it is possible to make sufficient money available.

Dr. Whittaker presented a proposed "policy statement" having to do with Medical Society relations with the Welfare Department and the State Government. Upon motion of Long and Saltzman, the Council voted to accept the principle of the statement of policy but requested that the

Executive Committee confer with legal counsel for rewording of the statement.

V. C. C. Long, as chairman of the Fee Negotiating Committee, reported on the agreement reached between that committee and officials of the Office for Dependents' Medical Care on increased fees for that program. These are to be based on usual and customary fees with a system of review for those fees appearing to be above that level. Upon the motion of Fowler and Whittaker, the Council voted to authorize the Chairman of the Council to consummate a new contract based on that principle.

VI. Mr. Schaefer called the Council's attention to the fact that the two previous items represented actions by organized medicine through the Executive Committee and the negotiating committee. He suggested that had a Medical Society not been in existence, someone would have had to have created one to accomplish either one of the items outlined in the two previous reports. Upon the motion of Saltzman and Kennedy, the council voted to direct Mr. Schaefer to write a letter to all members calling their attention to these facts. The decision on whether or not to publish an article of similar nature in the Journal was left up to Mr. Schaefer.

VII. The Council voted to approve a \$1,000 contribution to the Arkansas Political Education Committee.

VIII. The request of the Louisiana State Medical Society for action against legislation on the compulsory use of generic drugs was discussed. Upon the motion of Whittaker and Norton, the Council voted to adopt the American Medical Association resolution on this subject and to advise Senator Russell Long of Louisiana and the Arkansas delegation of its action.

IX. Upon the motion of Kolb and Shuffield, the Council voted to contribute \$10 to the Interagency Council on Smoking and Health.

X. Dr. Saltzman called the attention of the Council to the fact that Dr. Brooksher's absence was due to the necessity to hospitalize Mrs. Brooksher and suggested that the Council send flowers to her. It was so voted.

XI. After discussion, the Council voted not to accept advertising from, or sell exhibit space to Dunhall, Inc.

XII. Dr. Shuffield and Mr. Warren discussed the status of legislation of interest to the medical profession now before the Arkansas Legislature.

Dr. Shuffield reported that House Bill 357, a modified version of the compulsory PKU testing bill, had been so changed to make it less objectionable and one with which the medical profession could live. He reported that Senate Bill 106 (Bell) and House Bill 235 (Shaver) regarding the referral of eye patients by any person drawing State funds is still objectionable. Dr. Herron discussed House Bill 391, by Davis, Milner and Patrick—the intent of which is to prohibit the Health Department from regulating the processing and handling of frozen foods. After a lengthy discussion, upon the motion of Bell and Long, the Council voted to go on record as opposing HB 391.

XIII. The Council discussed Public Law 89-749 of the 89th Congress known as the Comprehensive Health Planning and Public Health Service Amendments of 1966. Upon the motion of Saltzman and Kolb, the Council voted to notify the Governor that it believed that the State Health Department was best qualified to direct comprehensive health planning.

XIV. The Council took no action to nominate recipients for the Tom T. Ross Award or the Outstanding Achievement Award given by the Public Health Association.

XV. The Council voted to refer the request for support by the Fort Smith Chapter of Junior Achievement to the Sebastian County Medical Society.

XVI. Voted to follow a schedule of morning meetings of the Council during the Annual Session similar to the schedule used in 1966.

XVII. Chairman Thomas announced that Mrs. C. C. Long had received the nomination of the Woman's Auxiliary to the American Medical Association as president-elect of that organization. Upon the motion of Shuffield and Kennedy, the Council voted to send Mrs. Long the Council's congratulations.

XVIII. After discussion of the duplication of committees in the field of fee negotiations, upon the motion of Shuffield and Fowler, the Council voted to direct the Constitutional Revisions Committee to take the necessary steps to combine all fee committees under one committee to be appointed by, and remain under, the jurisdiction of

the Council of the Arkansas Medical Society.

XIX. Dr. Thomas presented the name of Dr. C. Lewis Hyatt to replace Dr. Julius Hellums on the Professional Relations Committee of the Fourth District. The Council confirmed Dr. Thomas' selection.

XX. Dr. Randolph Ellis read a letter from the American Medical Association stating that military dependents could pay a doctor and be reimbursed by the government.

XXI. Dr. Hyatt, as president of the State Board of Health, called attention to the fact that some difference of opinion had appeared on the future course of the treatment of tuberculosis. He felt that some misunderstandings had occurred which might be cleared up by a frank discussion of all those involved.

Upon the motion of Shuffield and Payton Kolb, the Council voted to go into Executive Session.

After hearing an explanation of the various points of view, the Council voted to refer the report on "Tuberculosis Control in Arkansas" by Drs. Pfuetze and Stocklen to the Sub-Committee on Tuberculosis with a request that it make its recommendations to the Council prior to the coming Annual Session.

APPROVED: H. W. Thomas, M.D.
Chairman of the Council



PROCEEDINGS OF SOCIETIES

Independence

Dr. Charles Taylor of Batesville is the 1967 president of the Independence County Medical Society. Dr. Alfred Hathcock is vice president and Dr. James Stalker is secretary-treasurer. Dr. Jim Lytle has been re-elected as delegate and Dr. Harold Tatum of Melbourne has been elected alternate delegate.



BOOK REVIEWS

Radiology in World War II, Medical Dept., United States Army, Edited by Col. Arnold Lorentz Ahnfeldt, MC, USA, Kenneth D. A. Allen, M.D., Elizabeth M. McFetridge, M.A., Mindell W. Stein, B. Sc.; Office of the Surgeon General, Dept. of the Army, Washington, D.C., 1966.

This book is of considerable interest to radiologists, but is of limited interest to physicians in general. Perhaps the most important part in it is the portion entitled "Development of the Atomic Bomb." This section of the book is of extreme historic interest to all physicians. The text is adequately illustrated and is, again, an important historical volume concerning Medicine in World War II.

A manual of tropical medicine, by George W. Hunter, III, Ph.D., Col. U.S.A. (retired), William W. Frye, Ph.D., M.D., Sc. D. (Hon.), J. Clyde Swartzwelder, Ph.D., Fourth Edition, Published by W. B. Saunders Company, Philadelphia and London.

This 931 page textbook of tropical medicine is edited by three outstanding authors in this field. A number of authors have actually written the book. The book con-

sists of a section of virus diseases, rickettsial diseases, spirochetal diseases, bacterial diseases, mycotic diseases, protozoal diseases, helminthic diseases, nutritional diseases, and miscellaneous conditions. It discusses some of the important mollusks and arthropods and their control. The book has numerous illustrations, many charts and adequate bibliographies. It is thoroughly recommended as a manual of tropical medicine.

Human Development, by Roy M. Acheson, Mathea Allansmith, Henning Anderson, Leslie B. Arey, Frank P. Bakes, Nancy Bayley, Bent G. Boying, Josef Brozek, Edmund Churchill, C. Dreyfus-Brisac, Frank Falkner, L. J. Filer, Jr., Samuel J. Fomon, Lawrence K. Frank, T. M. Graber, Edward E. Hunt, Jr., Jerome Kagan, Arthur H. Keeney, J. Cl. Larroche, Marion Maresh, A. Minkowski, Robert E. L. Nesbitt, Jr., George M. Owen, Kaare Rodahl, S. Saint-Anne Dargassies, Nathan W. Shock, Jacqueline Vignaud, Claude A. Villee, John C. Wright, published by W. B. Saunders Company, Philadelphia and London.

This book is of considerable interest within a limited field—namely that of human development. It is written by a group of outstanding authors under the editorship of Frank Faulkner. In the text are such chapters as Maturation of the Skeleton, Cultural Patterning of Child Development, Psychological Development of the Child, Development of the Nervous System, etc. This textbook is naturally of great interest to the pediatrician and is probably of moderate interest to all members of the profession as a reference. It has numerous charts, references and photographs.



Quantitative Determination of Perfusion Fibrinolysis

J. A. O'Neill, Jr., et al (Vanderbilt University Medical Center, Nashville, Tenn) *Surgery* 60:809-812 (Oct) 1966

Fifty consecutive patients undergoing cardiopulmonary bypass procedures were evaluated from the standpoint of postoperative bleeding and its possible relationship to plasminogen activation. Of the 50 patients, 48 had preoperative hematological studies within the range of normal. Thirty-two had excessive bleeding postoperatively. Three of these did not have evidence of fibrinolytic activity. Forty-nine had some degree of plasma clot lysis on the quantitative assay, even

though it was minimal in several instances. Whenever the quantitative assay for fibrinolytic activity was 50% or higher, excessive bleeding occurred, and this was the case in 29 patients. No consistent correlation could be made among plasma hemoglobin levels, the amount of coronary suction used, and significant degrees of fibrinolytic activity. The longer the period of cardiopulmonary bypass, the greater the incidence of excessive bleeding. The 32 patients with excessive oozing either stopped in time, had reexaminations with control of the bleeding site, or responded to the administration of additional protamine, fresh blood, or epsilon amino caproic acid.



Sponsored by Arkansas Tuberculosis Association

RHINOVIRUS INFECTIONS IN AN INDUSTRIAL POPULATION

In a three-year study of a group of employees, rhinovirus infections were the most common identifiable cause of acute respiratory disease. Peak periods were in the early fall, which would be the time to test the prophylactic value of potential antiviral compounds.

In an effort to determine the etiology and epidemiology of acute respiratory disease in a population of working adults, an evaluation of the role of a number of viruses was undertaken in a three-year study begun in March 1963.

The study population consisted of employees of the Eastern Regional Office of State Farm Mutual Insurance Companies in Charlottesville, Va., with approximately 550 employees participating the first two years and 350 the next.

Eighty-three per cent of the employees were less than 35 years of age, 59 per cent were women, and 30 per cent had children in school.

Employees were asked to keep a record of the number of respiratory, gastrointestinal, and general symptoms, and also of vacation periods and other times away from work. In addition, several supplementary surveillance methods were devised to evaluate the validity and reliability of the basic method of surveillance.

As a result of information gained from the supplementary procedures on-the-floor surveillance was instituted in September, 1964. This was done by having the study nurse get in touch with employees personally on a rotating schedule so that each week she visited every employee in the building, kept records herself and encouraged accurate reporting.

Employees were requested to report to the medical department at the onset of illness. They were examined by one or more physicians or a specially trained nurse; nose and throat swabs were collected, and acute-phase and convalescent-phase blood specimens were drawn when possible.

During the first year 810 specimens were collected from subjects who had been free of respiratory symptoms for a minimum of two weeks.

DISEASES REPORTED

A total of 3,314 respiratory, 268 gastrointestinal, and 117 combined respiratory and gastrointestinal illnesses were reported. Of these, 1,025 respiratory and combined respiratory and gastrointestinal illnesses were studied for viral agents, a 30 per cent sample of all illnesses with respiratory symptoms.

Respiratory illness constituted the great bulk of all illnesses recorded. Seasonal variations occurred, with particularly prominent peaks in September. Gastrointestinal and combined respiratory and gastrointestinal illnesses were low and remained relatively constant throughout the year.

Results of the supplementary surveillance studies prior to weekly on-the-floor surveillance indicated that between 20 per cent and 40 per cent of the illnesses were not being recorded or were being recorded inaccurately.

The attack rate for the population as a whole was 2.3 respiratory illnesses per person per year. Rates were slightly higher for women than for men, the excess in women being in the group from 16 to 24 years of age. Rates were not influenced by the presence of children in the home or by cigarette smoking.

During a one-year period which was specially analyzed, 23 per cent of employees reported no illnesses, 60 per cent had one, two, or three, and 17 per cent had four or more.

Rhinoviruses were isolated during the first 12 months from 19.5 per cent of 433 specimens from patients with respiratory illness and from 2.1 per cent of 810 specimens from well subjects. Over the three years, 239 rhinoviruses were isolated from 1,025 respiratory illnesses, an overall rate of 23.3 per cent.

In each of the three years of the study there was a peak of illness in September and early October associated with a high rhinovirus isolation

JACK M. GWALINEY, JR., M.D.; J. OWEN HENDLEY, M.D.; GILBERT SIMON, M.D.; and WILLIAM S. JORDAN, M.D. *The New England Journal of Medicine*, December 8, 1966.

rate. Comparison of specimens collected from multiple sites and processed separately indicated that the success of isolation varied with the site from which the specimen was obtained. Rhinoviruses were isolated with greatest frequency from the nose.

Self-diagnosed respiratory illnesses accounted for 36 per cent of the total absenteeism recorded by the company's medical department. Ill-defined constitutional illnesses, many with gastrointestinal symptoms, ranked next as a cause of absenteeism.

IMPLICATIONS OF THE DATA

Data from this longitudinal study of acute respiratory illness in young civilian adults strengthened the rapidly increasing body of evidence relating members of the group of acidlabile picornaviruses known as "rhinoviruses" to the common-cold syndrome.

Although rhinoviruses were recovered from a few asymptomatic subjects, prevalence data indicated a clear association with illness. Within the rhinovirus group alone there are perhaps as many as 100 serotypes. Since rhinoviruses stimulate antibody production and resistance to reinfection, it is clear that a major explanation for the frequency of respiratory infections is the large number of different agents capable of inducing them.

RHINOVIRUSES PREDOMINATE

The finding in the employees of high percentages of rhinovirus isolation coincident with the

early fall peaks of respiratory illness indicates that it is primarily rhinovirus infections that usher in the respiratory-disease season in this population.

The cause of the seasonal variations in respiratory illness is a mystery, largely unexplained by studies of meteorologic and other environmental factors. That increased rates of respiratory illness are associated with school attendance has been clearly shown, and may be a factor in the rapid buildup of respiratory illness in September. Paradoxically, rhinoviruses have not been shown to cause a major proportion of acute respiratory illness in children.

Nasal swabs were found to be superior to pharyngeal swabs or saliva as a source of virus. This fact raises the question of whether rhinovirus infection occurs predominantly in nasal or other ciliated mucosal cells, the presence of virus in pharyngeal secretions or saliva being the result of virus shedding from the nose.

Perhaps the optimal time to search for new agents would be during periods of high illness but low rhinovirus prevalence, as from January to March. Prophylactic administration of antiviral compounds, rather than multivalent vaccines, may be the answer to the control of rhinovirus common colds. The best time to undertake a controlled trial of potential antirhinoviral drugs in such an industrial group would be early September through October.



Enzyme Strip Method of Blood Glucose Determination

L. E. Hollister, E. Helmke, and A. Wright (VA Hosp, 3801 Junipero Serra Blvd, Palo Alto, Calif) *Diabetes* 15:691-694 (Sept) 1966

Determination of blood glucose levels by an enzyme strip test and the autoanalyzer was compared in 542 samples. The enzyme strip test tended to overestimate glucose values in the lower ranges and underestimate them in the upper ranges. Although agreement between the methods was reasonably good in the 60 to 135, and 130 to 200 mg/100 ml ranges, underestimation of val-

ues by the strip test occurred in 10% of the samples at the latter range. A study of the sources of variability of the enzyme strip test revealed that the color matching step was very likely the source of the greatest amount of technical error. The latter was high for the test, the coefficient of variation of blind independent determinations on ten samples by four technicians being 27.5%. The clinical usefulness of the test is limited, and it should not be employed if other methods of determining glucose levels are easily available and if time-element permits.

May, 1967

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

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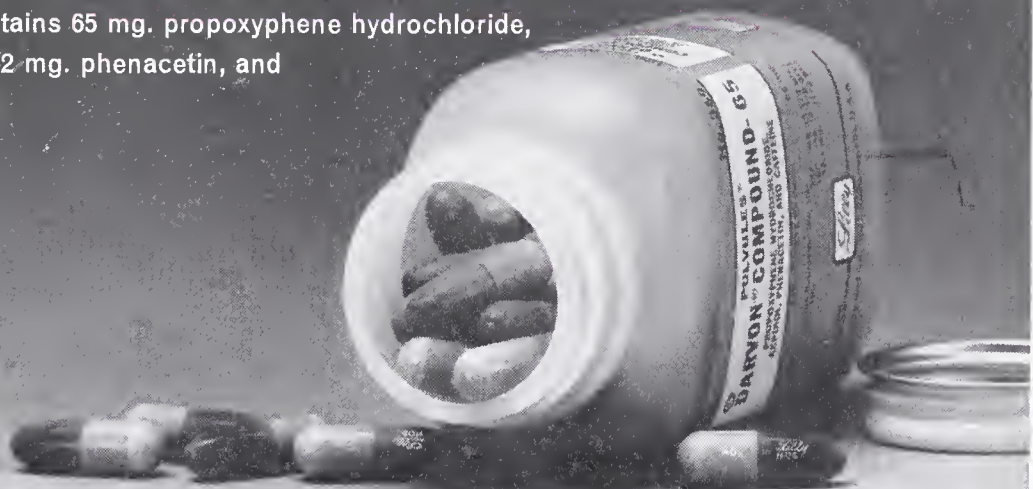
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PARKE-DAVIS

Metabolism and Proliferation of Atypical Lymphocytes in Infectious Mononucleosis*

Calvin Hanna and Peter Q. Dowling**

Infectious mononucleosis is a self-limiting disease of unknown etiology. The disease most often occurs in young adults although it has been reported to occur from the 1st to the 5th decade of life. The feeling of moderate to severe malaise is accompanied by cervical lymphadenopathy, lymphocytosis with atypical lymphocytes, pharyngitis and specific antibodies in the serum. Criteria for diagnosis is based on 3 aspects of the disease. A. Clinical manifestation with some degree of swollen posterior cervical lymph nodes, usually fever, headache and occasionally splenic enlargement are noted. B. Serological changes of serum antibodies to horse red cells (Monotest) always develop. C. Hematologic changes occur involving the lymph nodes with the production of atypical lymphocytes and an absolute lymphocytosis.

Lymphocytosis may occur suddenly at the start of the acute phase of the disease with the outpouring of large pleomorphic atypical lymphocytes. Gavosto *et al.* in 1959¹ made the observation that many of the atypical lymphocytes incorporated thymidine-tritium into the nucleus at about 30 times the normal rate (0.06 per cent of lymphocytes) occurring in normal blood. This observation has been confirmed in at least 8 publications involving about 46 subjects with infectious mononucleosis. Epstein and Brecher in 1965² found that the per cent of atypical lymphocytes incorporating thymidine-tritium was highest during the acute phase of the infection. These investigators found no mitotic figures leading to the suggestion that the thymidine-tritium incorporation was due to the multiplication of a DNA virus. Our studies confirm that the atypical lymphocytes in the peripheral blood are undergoing a rapid rate of cell division with thymidine-tritium being incorporated in DNA followed by mitosis.

phocytes in the peripheral blood are undergoing a rapid rate of cell division with thymidine-tritium being incorporated in DNA followed by mitosis.

Methods

Forty male patients, 18 to 27 years of age exhibiting cervical lymphadenopathy, lymphocytosis, atypical lymphocytes and specific antibodies in the serum (positive Mono Test, utilizing formalinized horse erythrocytes) were studied. Venous blood was drawn during various clinical stages of the disease. This blood was mixed with thymidine-tritium and incubated at 37° C for various periods of time.³ Colcemid was added to some blood samples to arrest dividing cells in metaphase. For chromosomal analysis the cells were fixed in methanol prior to autoradiography.³ Lymph node samples were taken from 3 patients during the acute phase of the infection and the samples incubated in thymidine-tritium solution.

Results

Atypical lymphocytes in infectious mononucleosis exhibit a pleomorphism when thick blood films are air dried. Using thin quick drying blood films made on cover slips the atypical cells were classified into four general types. A primitive plasma-like large atypical cell was found during the first 2 weeks of the infection. A high percentage of these cells were undergoing DNA synthesis making this cell type easy to locate. The primitive plasma-like cell is large (15-20 u) and the nucleus stains lighter than the cytoplasm with Wrights or Geimsa stain. This cell type has not been reported previously. There is probably a precursor cell type that was found in the lymph node and this cell type was also undergoing a high rate of DNA synthesis. A second cell type was a group of large basophilic lymphocytes un-

*Paper presented at the University of Arkansas Medical Center in October at the meeting of the Southwest Section of the Society for Experimental Biology and Medicine.

**Department of Pharmacology, University of Arkansas Medical Center, Little Rock, Arkansas.

dergoing DNA synthesis. This cell was large (15-25 μ) with a dark staining nucleus which is ovoid and eccentrically placed with a coarse chromatin network. A "hof" in the dark staining cytoplasm is adjacent to the nucleus. This cell type makes up about 20 per cent of the atypical cells and is present for at least a month. The large (15-25 μ) pale or light lymphocyte is the most numerous atypical cell type which stains pale with an unusually large nucleus and a delicate chromatin network. A low percentage of these cells undergo DNA synthesis although the cell type may persist for months. The percentage of atypical monocytes in the blood during the acute phase of the infection is low. The monocyte did not undergo DNA synthesis.

The atypical cells in the peripheral blood during the acute phase of the infection are undergoing a high rate of DNA synthesis and mitosis. When whole blood from an IM patient during the acute phase is mixed with thymidine-tritium and then colcemid is added several hours later, many tritium-labeled metaphases are found. Some of these tritium-labeled mitotic figures are found after 2 hours of incubation with thymidine-tritium in the absence of colcemid indicating a very fast cell cycle. When normal blood is treated in this manner only a rare cell in DNA synthesis is found. When the atypical lymphocytes from IM subjects are prepared for chromosomal analysis the chromosomal count was normal except for an unusual double set of chromosomes. However, each chromosome was undergoing DNA synthesis after only 4 hours exposure to thymidine-tritium further indicating a much higher rate than normal of DNA synthesis.

Comments

These studies clearly establish that the peripheral blood cells during the early stages of infectious mononucleosis are undergoing a high percentage and a rapid rate of DNA synthesis which is followed by mitosis. A DNA virus is not involved because the DNA synthesis occurred only in the chromosomes.

Some aspects of infectious mononucleosis strongly resemble various leukemias in that in both conditions there are primitive lymphocytes undergoing DNA synthesis. These blood cells are undergoing division while in normal peripheral blood dividing cells are rarely found. In Hodgkin's disease cells with a double set of chromosomes are found⁴ and we found some of the same occurrences in infectious mononucleosis cells. The lymph nodes of infectious mononucleosis contain cells strongly resembling Reed-Sternberg cells. It is suggested that the resemblance to the leukemias indicate only that cells in the blood are rapidly proliferating in both conditions.

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Cryogenic Temperature Studies of Human Skin

S. A. Zacarian and M. I. Adham (130 Maple St, Springfield, Mass) *J Invest Derm* 48:7-10 (Jan) 1967

Thermacouples were inserted at 2 mm skin depth in a patient under spinal anesthesia. Q tips saturated with liquid nitrogen were applied on the cutaneous surface, while temperatures were recorded on a potentiometer at the subcutaneous

level. Despite successive applications of Q tips, skin temperature neither dropped below -26 C, nor sustained. Single applications of copper cylinder disks of varying diameters, cooled in liquid nitrogen, produced subcutaneous temperatures from -30 C to -75 C, and sustained for 150 seconds. During the past 17 months cooled copper cylinder disks were used for the eradication of 218 cutaneous basal cell and 27 epidermoid carcinomas.

Antiarrhythmic Actions of a New Coronary Vasodilator Agent, Iproveratril

Calvin Hanna** and Jack R. Schmid***

Iproveratril (Isoptin), α -isopropyl- α -[(N-methyl-N-homoveratryl)- γ -aminopropyl]-3,4-dimethoxyphenylacetonitrile hydrochloride is a potent experimental coronary vasodilator that is effective in aborting attacks of angina pectoris.¹ This compound was found to be an antiarrhythmic agent in animals and the results of this study are reported here.

Methods

Aconitine atrial arrhythmias were produced in open chest anesthetized dogs by suturing a piece of cotton saturated with 0.05% aconitine nitrate on the atrium. Iproveratril hydrochloride or quinidine sulfate were infused at a constant rate (0.01 mg/kg/min or 0.03 mg/kg/min, respectively) intravenously until the arrhythmia was converted to a sinus rhythm.

Hydrocarbon-epinephrine ventricular arrhythmias were produced in anesthetized dogs by the inhalation of 0.04 mg/kg of *n*-hexane followed in 15 seconds by 10 microgm/kg of intravenous *I*-epinephrine base. A temporary ventricular arrhythmia developed shortly after the epinephrine injection. Iproveratril or quinidine were then titrated intravenously and a hydrocarbon-epinephrine injection was repeated every 15 minutes until a sinus rhythm persisted.

Ouabain-induced ventricular tachycardia was produced by repeated intravenous injections of ouabain every 30 minutes starting with 40, 20, 10, etc. microgm/kg doses until an arrhythmia developed. After the arrhythmia was established and stabilized, iproveratril or quinidine were ti-

trated intravenously until a sinus rhythm returned.

Coronary ligation ventricular arrhythmias of multifocal origin were produced in dogs. Unanesthetized dogs, at the peak arrhythmia period of 20 hours post-ligation were treated with intravenous iproveratril or quinidine.

Results

Quinidine in an average dose of 6.4 mg/kg converted to a normal sinus rhythm 5 out of 5 dogs with aconitine atrial arrhythmia. An average dose of 3.1 mg/kg of iproveratril produced the same effect in 5 out of 7 dogs. Iproveratril was much more effective in the treatment of ventricular than atrial arrhythmias. Versus hydrocarbon-epinephrine arrhythmias a total average dose of 0.3 mg/kg of iproveratril converted 7 out of 7 dogs while an average of 4.0 mg/kg of quinidine was required to convert 6 out of 6 dogs. In the ouabain induced arrhythmias iproveratril was effective in 6 out of 7 dogs at an average dose of 0.7 mg/kg, while 5.7 mg/kg of quinidine was required to produce the same effect in 3 out of 5 dogs. In the coronary ligated dog an average dose of 9.1 mg/kg of quinidine was required to convert the arrhythmia to a sinus rhythm in 5 out of 5 dogs. Iproveratril was effective in 7 out of 9 coronary ligated dogs at an average dose of 0.3 mg/kg.

Comment

Iproveratril is presently undergoing clinical trials for the oral treatment of angina pectoris. This drug appears to be an effective antiarrhythmic agent in dogs, especially against ventricular arrhythmias. This drug may prove useful as a combined coronary vasodilator and antiarrhythmic agent in the treatment of arrhythmias, for example, those following myocardial infarction.

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*Paper presented at the University of Arkansas Medical Center in October at the Meeting of the Southwest Section of the Society for Experimental Biology and Medicine.

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An Address Given to the Rogers Business and Professional Women's Club Concerning PKU

The following information on phenylketonuria and screening tests in the newborn infant was presented to the Rogers, Arkansas BPW Club. The BPW Federation is now working to have the bill introduced to the Arkansas State Legislature in January, 1967 to make PKU tests compulsory in Arkansas. In keeping with the recommendations of the Council of the Arkansas Medical Society, the PKU screening tests are desirable and should be done on a voluntary basis.

Members of the Rogers Business and Professional Women's Club, Doctor Nettleship, and Guests, it is an honor to be able to speak here this evening about a very important and controversial subject which has in the last few years developed a nation wide interest. At first, I didn't really intend to appear on this program; however, after receiving a letter from Mrs. Scara, chairman of the program, it seemed that I had been drafted to be here at this time. The letter explained that I might speak 5 or 10 minutes about PKU and then allow time for a question and answer period. As most of you probably know, there are screening tests for phenylketonuria which I will call PKU in the remainder of this talk. The screening tests have been given to infants for some time primarily under general research grants from the National Institute of Health. Considerable research and pilot studies were given to the St. Joseph's Infant Detection Program in California by a large grant from the California State Department of Public Health. From that study as of January, 1966, PKU Screening Tests have become a requirement by law of the state of California. Twenty-four other states of the United States have made mandatory PKU Infant Screening laws. There are six additional states which encourage the screening for PKU.

At present, the ANL Laboratory at Fayetteville, Arkansas, and the University of Arkansas Medical Center at Little Rock are active in running the blood PKU Screening Tests here in Arkansas. It is my understanding that this mandatory PKU infant screening law will be presented to our Arkansas Legislature at their next meeting early next year.

The screening consists of an initial test on the blood of infants just before discharge from the hospital, usually on the 3rd day of life or after

they have had 24 to 48 hours of milk formula feedings. A follow-up procedure at the first doctor's office visit, usually from the 3rd to 6th week of life is recommended. The California law does not make follow-ups mandatory at present; however, the St. Joseph group has found them to be worthwhile and therefore, request them. They have noticed that approximately 1 to 2% of PKU infants may not test positive initially but do on the follow-up studies.

I have a reprint from the Arkansas Child Development Center in Little Rock, which was distributed about 3 years ago and it stated that approximately 1 in every 25,000 births has PKU. It is of interest to me that only 2 years ago when I flew to Waggoner, Oklahoma and attended an Oklahoma State Health Department Seminar on PKU, at that time their studies indicated that the PKU abnormality occurred once in every 20,000 live births. More recent studies show that PKU is an inherited metabolic disease which damages the brain and destroys approximately one in every 10,000 babies born in the United States today. The PKU condition is transmitted by an autosomal recessive gene, and affected individuals are homologous for this gene. They received one of the specific genes from each parent. Parents may be heterozygous having one specific gene and one neutral gene. Because the specific gene is recessive, the parents may not manifest phenylketonuria. This abnormality, arising from a failure to manufacture the enzyme which metabolized the amino-acid phenylalanine, results in excessive accumulation of phenylalanine in the blood. As you may recall, I mentioned a few minutes ago that not all are equally mentally deficient. Some retain sufficient I.Q. to obtain a good social status and a possibility of marriage and child bearing.

Recently it has been discovered that, in rare instances, such apparently clinically normal women may have the bio-chemical defect of phenylketonuria with elevated blood phenylalanine levels. The chemical abnormalities, though of no hazard to themselves, are capable of causing damage to their offspring. The excess phenylalanine in the blood of these women, when pregnant, passed easily through the placenta to the blood of the fetus. Permanent brain damage may

occur in a biologically normal infant, due to the nine month period of exposure to its phenylalanuric mother. I recall reading about one infant that shortly after birth, the newborn showed an elevated blood phenylalanine, which subsequently dropped to a normal level. One sibling presented evidence of mental retardation without bio-chemical evidence of PKU, which indicates that it, too, must have been damaged before birth. A third pregnancy was anticipated, and the mother was strongly advised to restrict herself to the proper low phenylalanine diet during the nine months period of gestation. It was unfortunate, however, that she found herself unable to adhere to this synthetic diet and the third sibling was also severely mentally retarded.

Irreparable brain damage does follow within a few months to several years of life. It is found that 1 to 2% of the PKU population exhibit near normal intelligence, however, the majority have the I.Q.'s of 30 or less. About 1% of the institutionalized mentally retarded were found to have phenylketonuria. It is of importance to remember that PKU-affected infants usually develop as fair skinned, blue eyed, blonde, and beautiful children. Unfortunately, however, their disorder is accompanied later by symptoms of extreme uncontrollable irritability, loss of motor control in 80%, frequent exzematous out-breaks of the skin commonly known as dermatitis, lack of pigmentation, and a 25% incidence of convulsive epileptic seizures.

It is remarkable that results show that mental retardation can be prevented if a case of PKU is identified before 3 months of age, and the child is placed on the low phenylalanine diet. At the seminar which I attended in Oklahoma, it was not known at that time how long the child needed to remain on a restricted diet, but it appeared that the diet should be continued until the child is at least five years old.

More recent ideas concerning treatment, consist of a strict dietary regimen controlled by frequent tests of blood levels of phenylalanine until the blood PKU level remains normal. The treatment is limited in effectiveness only by a speed of administration, since damage begins with the first protein ingested by a new born infant.

While PKU is a relatively rare cause of mental retardation, it is important because it is one of the few conditions that can be arrested if caught early. There has been evidence that affected chil-

dren who are placed on a low phenylalanine diet early in infancy will develop normally. There is little or no improvement in mental development when such a diet is given to an older child where the condition has been present for some time. However, there are investigators who state that some mental retarded PKU individuals are more controllable when they are on the low phenylalanine diet.

I would like to mention just a little about the procedures of detection of PKU, however, I'll mention these briefly since I understand that Dr. Mae Nettleship of ANL Laboratories at Fayetteville, will discuss these procedures in detail later. The urine test presents serious problems of specimen collection, some drug interference, and limited sensitivity which frequently makes them unresponsive before the third or fourth week of life. Blood determinations, as a whole, are far superior in accuracy and early detectability. The blood test requires a few drops of infant blood and the test may detect the PKU abnormality as early as the third day of life.

If I may, I would like to demonstrate some of the disadvantages of the urine PKU Screening Test. I have 3 diapers here and I will place a little urine on each then a few drops of Ferric Chloride 10% solution, and let's look and see what happens. If you will notice, this one remains yellow, the second one has a slight purple-green appearance, and the third diaper has a marked purple color. Now the first diaper contains a normal urine specimen, the second diaper contains a voided specimen which the individual consumed approximately four aspirin on the day previous to the collection of the specimen. The third diaper shows what will happen if you test an individual who is being treated with PAS for tuberculosis. There are a few other inborn areas of metabolism which may give a false urinary positive PKU test.

In closing I would like to say that I think the availability of the urine and blood PKU determinations is a mile-stone in the progress of every day medical practice and research. I do not think the PKU test should be compulsory, with the state or federal government dictating to parents that their child must be tested, but I do believe every child should have PKU urine or blood determinations, and we should encourage the routine screening tests for PKU.

Thank you.

Physiological Complaints in Depression

Raymond W. Waggoner, M.D., Sc.D.*

Depression is one of the most common of all diseases with which the medical practitioner comes in contact and is remarkably protean in its various manifestations. It is proposed to discuss with you this morning some of those polymorphic manifestations which are presented by the patient under the guise of somatic symptomatology.

Depression is a condition to which everyone who has had any significant experience in life is inevitably subjected. There are many excellent and detailed descriptions of the condition available in both the lay and the scientific literature. Sadness and grief have been described as normal depression. Certainly it is usual to feel "depressed" when subjected to the loss of anything which has significant value for the individual. Such loss may be material, personal, health, or, as the Orientals phrase it, loss of face. The manifestations of such a reaction usually are relatively mild and are simply manifested by temporary mood changes. In contrast, is the pathological depression which occurs if the reaction is too extended or out of proportion to the loss, or if there seems to be relatively little in the way of exogenous source for the reaction. There are many varied and excellent descriptions in Burton's "Anatomy of Melancholy."

Lehmann, in a clear exposition of the condition, states that the physician having a depressed patient is faced with four tasks, (1) to define what he means by depression, (2) to recognize it, (3) to differentiate the various forms of depression and arrive at the appropriate diagnosis, and (4) to administer appropriate treatment. He further comments, and with this I agree, that depression may be manifested as a symptom, as a depressive mood, or as a syndrome.

Although depression is not seen frequently in children before the age of puberty, yet it can occur and, when it does, it must be given the same serious consideration as though the patient were an adult. Depression may actually lead to suicide in the child or the adolescent. It is seen in all areas of medical practice and is the underlying factor in a broad spectrum of physical symptoms and complaints as well as in the manifest forms

which are familiar to all of us.

There is little difficulty in the diagnosis when the patient presents the cardinal symptoms of sadness, despairing mood, decrease of ability to think and to do things, and with slowing of motor response. When such symptoms are associated with a sense of hopelessness, hypochondriacal preoccupation, ideas of self-accusation and self-destruction, the diagnosis becomes obvious.

In my opinion, most depressive manifestations have essentially the same psychological background whether we are dealing with a depressive disease such as manic depressive psychosis, a depressive reaction as a manifestation of a neurosis, or if manifested in those various conditions upon which we are at the moment focusing our attention, that is to say, where the patient has physical symptoms but there is no outward evidence of depression. In all of these, the dynamic factors are essentially the same but acting on individuals with different emotional, intellectual, and constitutional endowments as well as in different environments result in the varied reaction patterns.

Depression is quite commonly associated with certain types of physiologic disorders, such as infectious hepatitis, diseases of the respiratory system, as well as states of exhaustion, fatigue or malnutrition. A new problem has to do with depressive episodes in persons who have received organ transplants. This has been studied in detail by one of my staff, Dr. John Kemph, who reported his findings at the 1966 Annual Meeting of the American Psychosomatic Society. Depression may quite commonly occur in individuals who are required to undergo mutilating operations, as for example, breast surgery or amputation of an extremity. One of my patients, however, had a bilateral breast amputation for carcinoma involving each breast. She responded to this operation reasonably well. Some time later, as a result of another physical difficulty, she was given a blood transfusion and developed a secondary hepatitis. Then she developed a deep depressive reaction. In other words, she was able to accept the mutilating operation but not the enervation of the hepatitis. Was there some chemical or physiological change in the metabolism of the individual or had the patient simply

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reached the limit of her tolerance?

John Whitehorn says, "The perception of an issue in a patient's life which could clarify the meaningfulness of his reaction is not infrequently misconstrued as if it were the discovery of the cause of the patient's illness." Our tendency to place the responsibility on one factor, psychological or physiological, for the patient's distress is far too frequent. In many instances, depression represents the last desperate stand on the part of the individual to maintain his control of, and to disown, threatening, hostile, and aggressive impulses. These, of course, may be unconscious. The depressed person is plagued with hostility that may not be immediately apparent on a conscious level but, in turn, leads to ideas of guilt and unworthiness. The attitude of the depressed person toward those whom he loves may carry a heavy charge of hostility which may be expressed in a subtle fashion in small but accumulative quantities over a long period of time. There is an interesting book called *The Importance of Being Imperfect* by John Clark in which the statement is made, "The grave of love is excavated with little digs."

Although it would be of interest to spend more time discussing the general characteristics of depression, I am particularly concerned about bringing to your attention the frequent occurrence of somatic symptoms as an expression of depression and to emphasize the fact that these manifestations may occur without any outward evidence that there is a depression or even a depressive element present. As a result of the frequency of this type of manifestation, there is constant danger of iatrogenesis. Inappropriate treatment of apparent physical disease can serve to crystalize a camouflaged depression and to make it much more difficult to treat when the true nature of the illness is recognized. It is to be emphasized that the somatic symptoms of depression are so all-pervasive and so varied in their manifestations that many different syndromes may be simulated. Indeed, a patient with a severe depression, but with no outward evidence of it, may go about his daily activities without apparent reduction in efficiency. He appears to be interested in others and their activities and oftentimes gives little evidence of his true condition either to his friends or family.

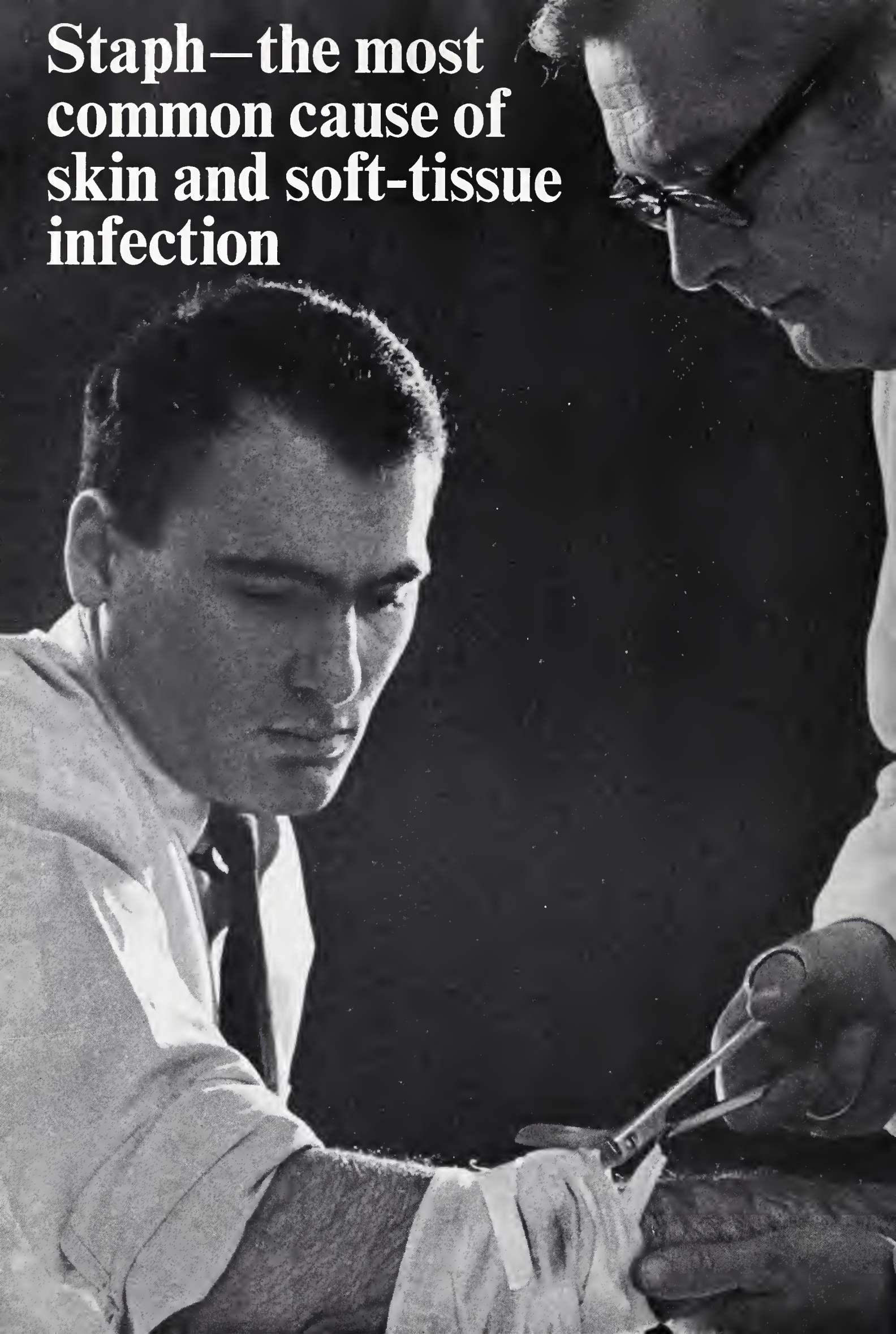
It should also be remembered as an important factor in diagnosis that the patient may, early in

life, have actual evidence of depression and, later in life, develop somatic symptoms as a mask for the depression. An example of this is that of a patient who, as a young girl, had a feeling that there was something wrong between her father and mother and contemplated suicide in order to bring her parents closer together. This was followed by a depression for which she received psychiatric treatment. Another such episode occurred when she was in college. During her early marriage, she had several episodes of depression. She had three healthy children and, at about the time of menopause, she developed a carcinoma of the breast with a radical mastectomy and castration. Subsequent to this episode, over a period of several years, she would have episodes of fatigue, difficulty in eating, irritability, and an awareness that she had difficulty in relating to people outside of her family, but no other outward evidence of depression. These somatic symptoms were, in effect, the evidence of her depression.

Changes in bowel habits or other gastrointestinal symptoms, symptoms involving the genitourinary tract, particularly as manifested by impotence, frigidity, or lack of sexual interest, is oftentimes the presenting complaint and may suggest the presence of physical disease unless we are on the lookout for an underlying depression. In such instances, of course, it is vitally important that somatic disease not be overlooked, but the examination for such should be done in a way that does not impress upon the patient the probability that there is some kind of physical disease present. It is not uncommon for a patient to react to treatment for somatic symptoms in an unusual fashion, thus the symptoms may disappear or even be made worse. This is exemplified by paradoxical drug reactions, as when a hypnotic drug may act as a stimulant. We should be constantly on the lookout for this kind of "cry for help" from the patient.

When a patient has symptoms suggesting a surgical lesion and he can find a surgeon who will operate, he has a built-in mechanism for guilt expiation. It is not uncommon for a patient to have relief from symptoms for a period of time following such a procedure. Almost inevitably the guilt builds up again and the patient may go through the same process all over again. Some years ago, I saw such a patient who had had 23 operative procedures. As far as I could deter-

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*Conjugated estrogens—equine (Premarin®)	0.25 mg.
Methyltestosterone	2.5 mg.
Thiamine HCl	5.0 mg.
Cyanocobalamin	1.5 mcg.
Methamphetamine HCl	1.0 mg.

Contains 15% alcohol

MEDIATRIC Tablets and Capsules

Each MEDIATRIC Tablet or Capsule contains:

*Conjugated estrogens—equine (Premarin®)	0.25 mg.
Methyltestosterone	2.5 mg.
Ascorbic acid	100.0 mg.
Cyanocobalamin	2.5 mcg.
Intrinsic factor concentrate	8.0 mg.
Thiamine mononitrate	10.0 mg.
Riboflavin	5.0 mg.
Niacinamide	50.0 mg.
Pyridoxine HCl	3.0 mg.
Calc. pantothenate	20.0 mg.
Ferrous sulfate exsic.	30.0 mg.
Methamphetamine HCl	1.0 mg.

*Orally active, water-soluble conjugated estrogens derived from
pregnant mares' urine and standardized in terms of the weight
of active, water-soluble estrogen content.

MEDIATRIC helps keep the older patient alert and active;
helps relieve general malaise, easy fatigability, vague pains in
the bones and joints, loss of appetite, and lack of interest
usually associated with declining gonadal hormone secretion.

CONTRAINDICATION: Carcinoma of the prostate, due to methyl-
testosterone component.

WARNING: Some patients with pernicious anemia may not
respond to treatment with the Tablets or Capsules, nor is
cessation of response predictable. Periodic examinations and
laboratory studies of pernicious anemia patients are essential
and recommended.

SIDE EFFECTS: In addition to withdrawal bleeding, breast ten-
derness or hirsutism may occur.

SUGGESTED DOSAGES: *Male and female:* 3 teaspoonfuls of
Liquid, 1 Tablet, or 1 Capsule, daily or as required.

In the female: To avoid continuous stimulation of breast and
uterus, cyclic therapy is recommended (3 week regimen with
1 week rest period—Withdrawal bleeding may occur during
this 1 week rest period).

In the male: A careful check should be made on the status
of the prostate gland when therapy is given for protracted
intervals.

SUPPLIED: No. 910 — MEDIATRIC Liquid, in bottles of 16
fluidounces and 1 gallon. No. 752 — MEDIATRIC Tablets,
in bottles of 100 and 1,000. No. 252 — MEDIATRIC Cap-
sules, in bottles of 30, 100, and 1,000.



Mediatric®

steroid-nutritional compound



AYERST LABORATORIES, NEW YORK, N. Y. 10017 • Montreal, Canada

mine, in only two was definite pathology found. For such patients to have one or two or three operations is quite common but, when this has occurred with negative pathological findings, it certainly raises a question about the perspicacity or perhaps even the integrity of the surgeon who will allow the patient to hoodwink him into doing so many such procedures. The surgeon is by no means the only physician target. Innumerable medical diagnostic surveys and repeated treatments, particularly of the genito-urinary system, are performed on the patient who has no real physical problem. One such patient had a slightly enlarged prostate for which he was receiving weekly massage. When the depressive element of his symptoms was appropriately treated, the patient had no further genito-urinary symptoms.

The presence of somatic symptoms as evidence of a depression does not materially lessen the danger of suicide. Suicide is common in patients with depression. Not infrequently, we read of someone who has committed suicide with no apparent evidence of depression, yet a review of the individual's background may bring to light somatic complaints or even earlier depressive episodes. One patient who had complained of severe headaches, irritability, and fatigue was in a severe automobile accident with quite painful physical injury. During her convalescence she was referred to me and quite calmly admitted to me that the accident was purposeful in an attempt at suicide.

Obesity is not uncommonly a depressive equivalent. Since depression is an inadequate and unhealthy mechanism for the neutralization of anxiety, many patients relieve or deal with their anxiety by overeating. At the other end of the depressive scale, patients whose symptoms are loss of appetite, fatigue, and irritability frequently have a considerable weight loss as a manifestation of depression. Not infrequently, senile changes or those occurring with age, such as arteriosclerosis, may be exaggerated by depression. One such patient who had an obvious organic brain syndrome was urged by his physician and family to give up a prosperous law practice because he did not seem able to handle his business. His manifestations were forgetfulness, rudeness and tactlessness to his clients, outbursts of temper, and so forth. When he finally received treatment for his hidden depression, he was able to go back to his law practice and now, some ten or twelve

years later, is still active. If his depression which was thoroughly masked had not been recognized, at least ten or fifteen years of productive life would have been denied this individual.

It was commented earlier that children also may have a depression and, by the same token, they may manifest this in ways other than would ordinarily be expected. Many behavior problems such as hyperactivity, simulating post-encephalitic activity, school refusal, unprovoked temper outbursts, fighting, and other evidences of hostility may actually be a defense mechanism against bringing into consciousness, a depression. Somatic symptoms may be found comparable to those seen in adults, particularly headache, allergic conjunctivitis and rhinitis, asthma, gastrointestinal complaints are not uncommonly encountered in children as a clinical manifestation of a hidden depression.

There are a number of clues which should be looked for when hidden depression is suspected. These patients tend to deny the presence of subjective feelings of depression and continue to search for and demand an organic diagnosis which, when treated, may result in a short period of relief of symptoms. The response on the part of the patient of, "What I do usually does not turn out well," is quite characteristic. The tendency to persist in thinking of unpleasant ideas with reference to oneself when there is evidence to the contrary is not uncommon in situations of this sort. Also, when the patient persists in feeling that he is a failure or inadequate, may suggest a hidden depression. The inability on the part of the patient to become angry in situations which would cause such an emotional reaction in the average person, may also be a clue.

In a recent study reported by Schawb, et al. which included a review of 153 patients, the frequency of somatic symptoms was as follows:

1. Fatigue, Lethargy	70%
2. Insomnia	68%
3. Upper Gastrointestinal Disturbances (indigestion, etc.)	52%
4. Headache	42%
5. Anorexia	40%
6. Lower Gastrointestinal Disturbances (constipation)	39%
7. Recent Weight Loss	32%
8. Chest Tightness or Pain	29%
9. Tachycardia	29%
10. Generalized Pain	22%

- | | |
|--|-----|
| 11. Recent Loss of Libido | 21% |
| 12. Urinary Disturbances
(frequency, dysuria) | 21% |

This is only a partial list, of course, of possible manifestations which may be used by the patient to mask his or her depressive reaction.

In summary, when a patient presents himself with various complaints such as fatigue, lethargy, insomnia, gastrointestinal disturbances, headache,

anorexia, a recent weight loss, chest pain or difficulty in breathing, or genito-urinary problems and the physical findings are relatively insignificant, one should be on the lookout for a hidden depression even though the patient may not be consciously aware of such a reaction. Accurate diagnosis of somatic symptoms of depression should prevent many unnecessary medical and surgical procedures.



Parietal Cell Antibodies in Patients With Duodenal Ulcer and Gastric Cancer

R. E. Kravetz, S. Van Noorden, and H. M. Spiro (Dept of Internal Medicine, Yale Univ School of Medicine, New Haven, Conn) *Lancet* 1:235-237 (Feb 4) 1967

Circulating parietal cell antibodies in patients with duodenal ulcer were found to be in the lower range of normal. In a group of patients who had undergone subtotal gastrectomy, the range was still quite low. In a group of patients with gastric carcinoma the range was no higher than normal. About 70% of patients with gastric carcinoma have gastritis. This investigation suggests that in persons who can form parietal cell antibodies the development of antibody may be independent from gastritis or may form as a result of gastritis only if genetically determined capacity to form such antibodies exists.

Isoenzymes of Alkaline Phosphatase in Patients Operated Upon for Peptic Ulcer

M. J. S. Langman et al (MRC Statistical Research Unit, Univ College Hosp, London) *Lancet* 1:237-239 (Feb 4) 1967

Serum alkaline phosphatase (SAP) is derived from liver, bone, and intestine. In patients who have had a partial gastrectomy, raised levels of total SAP may be due to an increase in the intestinal component; this possibility was investigated in 555 male patients treated by Polya gastrectomy. The intestinal component did not appear particularly often in the serum of those treated by Polya gastrectomy as compared with those treated by vagotomy and drainage, nor was it found more often in those with raised total SAP. The raised total SAP found in patients treated by partial gastrectomy is unlikely to be due to increased quantities of the intestinal component.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., Professor, and Chairman
STACY R. STEPHENS, M.D., EDITOR

Management of Face Presentation

Charles E. Fougrousse, M.D.*

Although the incidence of face presentations is reported to be low, numerous papers have been written discussing the etiology, diagnosis, and management of this condition. Management of face presentation has changed over the past twenty-five years. The primary influence supporting these changes has been fetal salvage.

Because the etiology of face presentations is generally agreed to be a maternal or a fetal factor which cannot be altered, the ultimate goal is to acquaint the obstetrician with the proper management and thus reduce fetal mortality to the absolute minimum.

In reviewing the recent literature, this author's attention has been directed principally to the diagnosis and management of the laboring patient with a face presentation.

HISTORICAL BACKGROUND

In 1894, Marx in the *New York Journal of Obstetrics and Gynecology* stated that the overall infant mortality rate in face presentations was 10 per cent, twice that of all vertex deliveries.¹

Management at that time did not include abdominal delivery. Manual efforts of flexion included the Schatz external flexion maneuver (flexing trunk upon unengaged head), Wallstein's manual rectification to vertex with a 10 per cent fetal mortality alone, forceps with a 20 per cent mortality, and internal podalic version with 40 per cent mortality rate.

Megid and Gillespie² reported that only 4.8 percent of 63 patients required cesarean section. Their experience revealed a corrected fetal mortality of 3 percent. However, a review of face man-

agement from Sloane Hospital for Women^{3,5} showed their section rate to be 12 percent for mentum anterior and 27 percent for mentum transverse and mentum posterior, an overall rate of 19.3 percent. They, too, as all recent literature attests, believe that there is no place for version and extraction with this abnormal presentation.

It is generally agreed that the maternal causes for this deflection attitude are associated with cephalopelvic disproportion,^{2,3,4,5} infants weighing greater than 4,000 grams or less than 2,500 grams, multiparity, and premature rupture of the membranes.

Fetal contributions are related to abnormally large thyroid and thymus glands, anencephaly, other monsters, and loops of umbilical cord around the neck. The largest contributing fetal condition is thought to be hypertonic extension of the neck muscles.

Most authors^{4,5} agree that the diagnosis of face presentations is not made until the second stage of labor in most cases. As long as progress is being made, attempts at vaginal delivery should be allowed.

MATERIAL AND RESULTS

Review of the last 41,000 deliveries at the University of Arkansas Medical Center showed 65 cases of face presentations, an incidence of 1:630.

Patients' ages ranged from 14 years to 42 years with an average of 27 years.

Fifty-three patients (81 percent) were multiparas and twelve (19 percent) were primiparas.

Ten patients delivered infants weighing less than 2,270 grams; twenty-seven infants weighed between 2,270 grams and 4,000 grams; and 27 infants weighed 4,000 grams or greater. The weight

*From the Department of Obstetrics and Gynecology, University of Arkansas Medical Center, March 10, 1967.

of one infant was not recorded. Two patients had twin pregnancies, the first infants in each case the face presentation.

Two patients were diagnosed before onset of the first stage of labor; 45 cases (70 percent) were diagnosed during the first stage; and 18 cases (28 percent) were diagnosed during the second stage of labor. Position was recorded in 58 patients. Mentum anterior was present in 29 patients, mentum transverse in 11, and mentum posterior in eighteen.

Fifty-eight infants were liveborn and seven were stillborn, a fetal mortality of 10.8 percent.

Two infants died as a result of prolapsed cord. One infant was an anencephalic; one was a microcephalic with shoulder dystocia; and one an intrapartum death following 31 hours of labor. Two infants were stillborn following version and extraction. One of these was an antepartum death for which no cause could be found.

Table I shows types of delivery. Twelve patients had conversions either spontaneously, manually, or by forceps, or by version and extraction to occiput anterior or mentum anterior positions.

DISCUSSION

The incidence of face presentation has been reported to be about 1:650 births. Our incidence of 1:630 is certainly comparable.

The majority of authors before 1950 believed that face presentation usually occurred secondary to cephalopelvic disproportion or in multiparas with large pendulous abdomens. Posner⁶ reported that 75 percent of his cases were in grand multiparas and 63 percent of the infants weighed greater than 4,000 grams. Gomez and Dennen⁷ reported 45 cases of which nine were premature infants weighing less than 2,500 grams and five were anencephalic. Magid and Gillespie² found premature rupture of the membranes commonly associated with their cases. I was not impressed with prematurely ruptured membranes as a contributing factor since only three cases occurred in this group. Quite incidentally all three of these patients had cesarean sections; one a repeat and the other two primary cesarean sections.

The age of the patient in our series seemed to play no significant role in face presentations. The average age in this group was 27 years; although several patients were in their low teens and a few others were in their early forties.

Eighty-one percent of our patients were multi-

para. However, only eighteen patients (28 percent) had had five or more children. This is an interesting observation and somewhat at variance with other authors.

Only forty-two percent of studied infants were within a normal weight range (2,270 to 4,000 grams). Fifty-eight percent of infants were either too small or too large. However, no fetal deaths occurred in this latter group.

It should be noted that the version and extraction that resulted in the fetal death was done in 1944 and no record of subsequent versions and extractions for face presentations is found. These data support the experience of Sloane Hospital that version and extraction has no place in the management of abnormal presentation.

Although diagnosis of face presentation is somewhat difficult to determine, the majority of authors^{4,5} report that only 50 percent are diagnosed in the first stage of labor. Seventy percent of our cases were diagnosed in the first stage of labor and two cases were diagnosed before the onset of labor. Thus only 28 percent were undiagnosed by the second stage.

It is generally agreed that about 75 percent to 80 percent of all face presentations will deliver vaginally, either spontaneously or with low forceps. However, the position of the mentum is most influential in the terminal management. Only four patients with mentum anterior position were delivered abdominally. One was a repeat cesarean section, the second was a failed induction at 36 weeks for Rh incompatibility, the third was a patient with unengaged head and prematurely ruptured membranes, and the fourth was a patient septic from pyelonephritis. Of the twenty-nine patients with mentum transverse or posterior positions, eight converted either spontaneously, manually or with forceps to mentum anterior and delivered vaginally. Two cases were converted manually from mentum posterior to occiput anterior followed by successful vaginal delivery.

Our overall Cesarean section rate was thirty-four percent. Of the 59 patients with known positions four of twenty-nine mentum anterior (10.1 percent) and eighteen of twenty-nine mentum transverse and posterior positions (62.1 percent) required Cesarean section.

CONCLUSIONS

1. The incidence of face presentation at the University of Arkansas Medical Center was 1:630, approximately that of other authors.
2. Age and parity appeared to have no significant effect on the production of face presentation.
3. Fifty-eight percent of infants studied had birth weights above or below normal.
4. As long as progress is apparent no intervention is indicated.
5. Diagnosis of face presentation was made in 72 percent of patients prior to the second stage of labor.
6. About ninety percent of face presentations in the mentum anterior position can be delivered vaginally. However, this type delivery can be expected in only about 40 percent of mentum transverse and posterior positions.
7. Internal podalic version has no place in the modern management of face presentations.

TABLE I
TYPES OF DELIVERY

	No.	%
Spontaneous	33	51
Low Forceps	9	14
Mid Forceps	1	1
Cesarean Section	22	34
	—	—
Total	65	100

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Anticomplementary Activity of Sera From Patients With Connective Tissue Disease and Normal Subjects

J. P. Castanedo and R. C. Williams, Jr. (Dept of Medicine, Univ of Minnesota Hospitals, Minneapolis) *J Lab Clin Med* 69:217-228 (Feb) 1967

Interpretation of complement fixation reactions are made problematical by anticomplementary activity (AC) sometimes encountered in sera of apparently healthy normal individuals, and also often present in sera from patients with connective tissue disorders. Physical separatory methods were utilized, including ultracentrifugation and Sephadex G-200 gel filtration combined with ultracentrifugation to attempt separation of AC activity from clear-cut complement fixation. Predominant AC activity was related to higher molecular weight materials present as aggregates of γ G in most sera studied. No clear correlation of anti-complementary activity with amounts of 11S to 16S intermediate complexes was found.

Human Trophoblast: Normal and Abnormal

A. T. Hertig (Harvard Medical School, 25 Shattuck St, Boston) *Amer J Clin Path* 47:249-268 (March) 1967

From a series of 107 women of proved fertility, 34 fertilized ova were found, 21 of which were morphologically normal and 13 abnormal. From an analysis of the clinical, histological, and embryologic data it is concluded that if the human female ovulates on day 14 or before, her chances of producing a good conceptus are 12 out of 13 or 92.3%; if she ovulates on day 15 or later, her chances are only 9 out of 21 or 42.8%; if conditions are optimal for pregnancy, the proved fertile human female in any one menstrual cycle has a 42% fertility rate, a 16% infertility rate, and a 42% sterility rate, and once the patient misses her expected menstrual period she has approximately a 28.5% chance of an immediate, non-clinical, or delayed, clinical abortion, and a 71.5% chance of going to term.

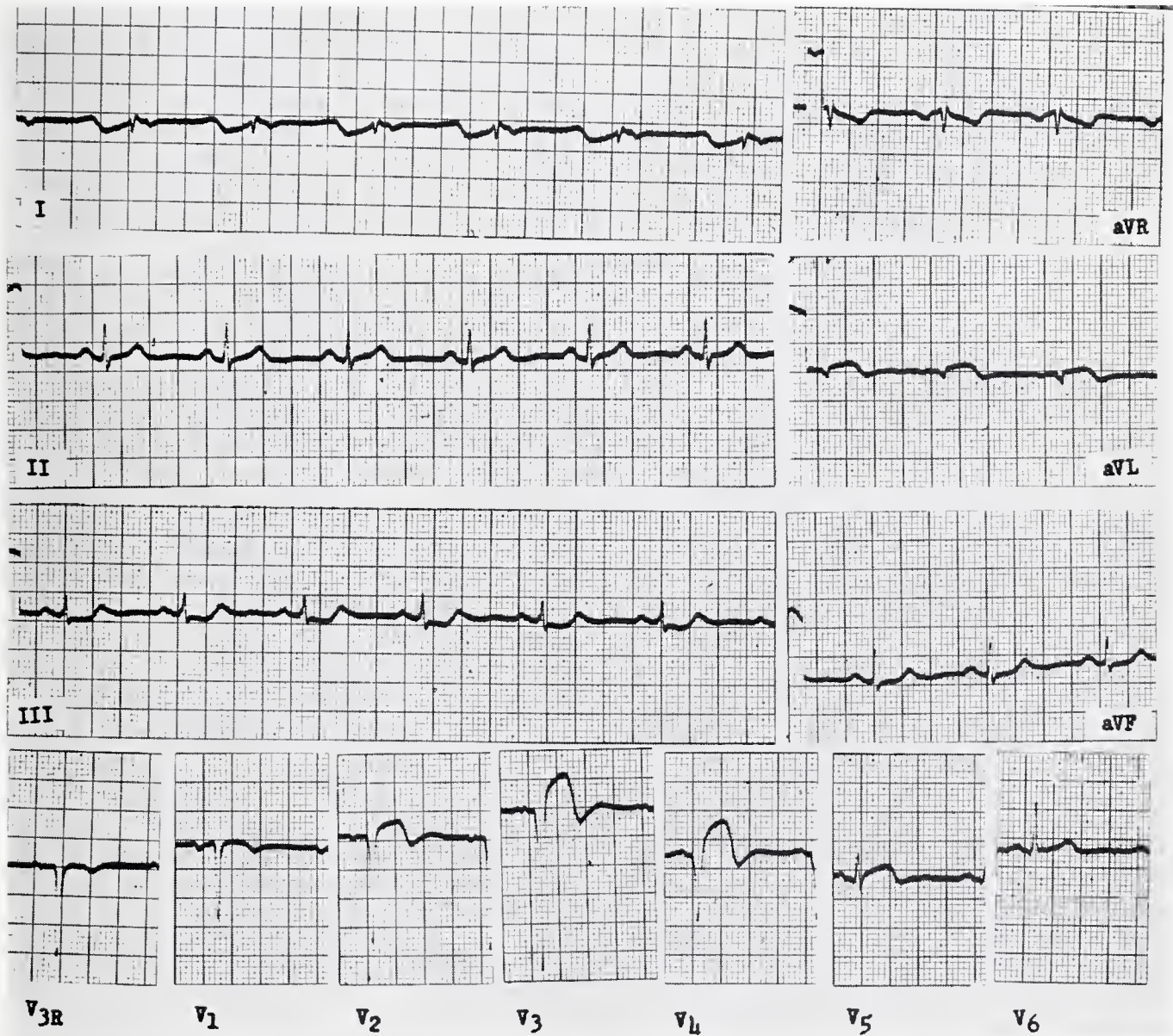


ELECTROCARDIOGRAM

OF THE MONTH

AGE: 49 SEX: M BUILD: Stocky BLOOD PRESSURE: 140/70
CARDIAC DIAGNOSIS: Arteriosclerotic Heart Disease
OTHER DIAGNOSES: None
MEDICATION: None
HISTORY: Substernal pain radiating down both arms 24 hours previously.

ANSWER ON PAGE 470

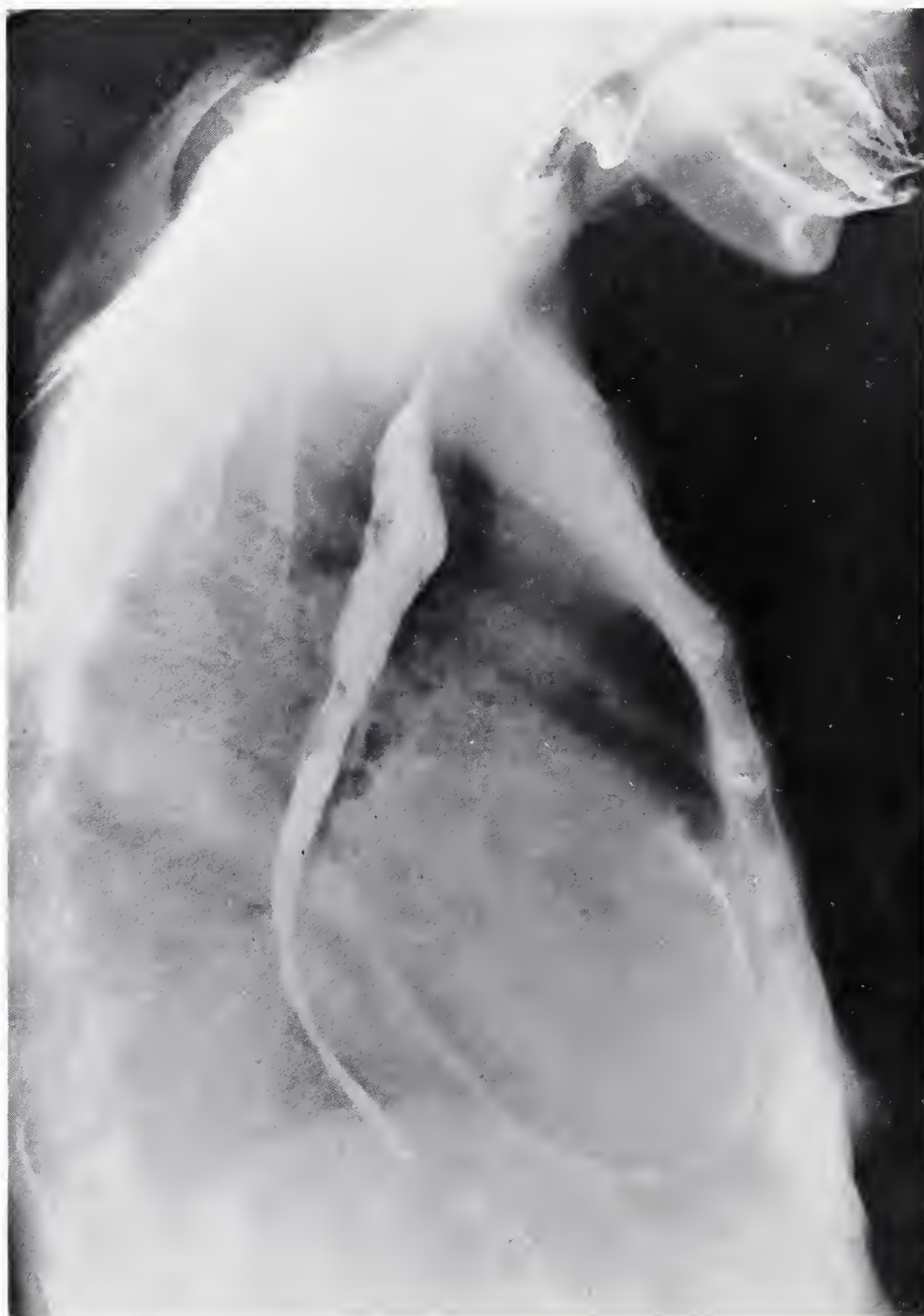


The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 470



HISTORY: Fifty-one year old Negro female with a four year history of congestive heart failure which has not responded to digitalis.



Major Recreation Lakes in Arkansas

The pressure of just plain living today creates such a traumatic society that physicians may desire to be better informed of the location of recreational areas in Arkansas.

The therapeutic value of relaxing in the environment provided by nature is apparent, especially to physicians.

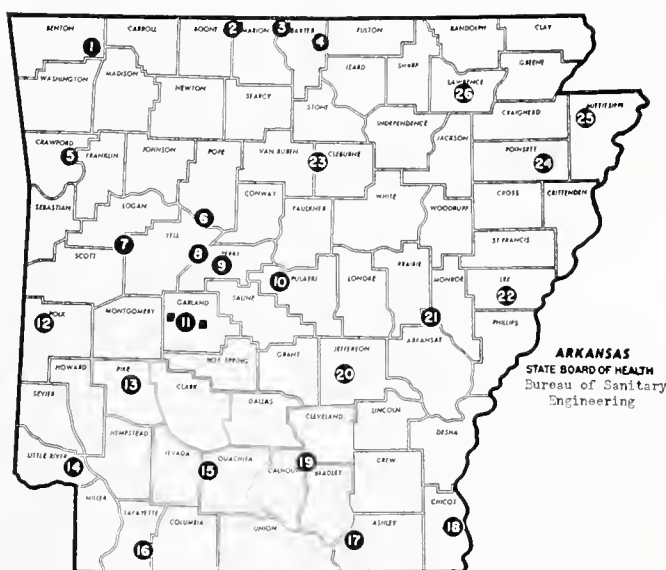
The surge of tourism in Arkansas and its recreational facilities has prompted the State Health Department to initiate a program of environmental health in recreational areas. Recreation and tourism accounted for \$489,000,000 spent in Arkansas in 1965, more than a million dollars per day. Therefore, the economic impact of tourism on the State emphasized and supported the need for an environmental health program in recreational areas.

Arkansas is unique in that it has many scenic mountain areas where camp sites and large lakes have been developed. The major justifications for the development of lakes are flood control, recreation and hydroelectric power. There are 21 such lakes completed or under construction in Arkansas, plus hundreds of small lakes located throughout the State, built primarily for fishing and other recreation.

Most Arkansas lakes provide recreational facilities which include camp sites, picnic areas, boat launching ramps, swimming areas, well water and toilet facilities. Some recreational areas provide boat rental service. Almost all areas have eating and sleeping accommodations close by; however, family camping has become a very popular leisure activity. Not only is relaxing on the shores of a beautiful lake or plugging for the lunkers in your favorite cove an excellent method to recuperate, but it is also a refuge for the physician himself—a place where he can “unwind,” so to speak.

There is hardly a city or town in Arkansas

which is not located within a thirty minute drive of a major recreational area. It may be one of the twelve state parks, which is located near a stream or lake. Some cities have developed municipal water supply lakes which permit limited recreational activities of boating and fishing such as Lake Fort Smith and Lake Maumelle, but prohibit swimming and water skiing. There are adequate facilities elsewhere in the State for swimming and water skiing, therefore, no city should permit such gross contamination of its municipal water supply reservoir, even though presumably adequate subsequent processing in the water treatment plant is provided — only a minor breakdown could permit an epidemic with much unnecessary suffering, to say nothing of the possible resultant deaths.



- | | | |
|------------------|---|--------------------------------|
| 1. Beaver | 11. Hamilton,
Ouachita,
Catherine | 18. Chicot |
| 2. Table Rock | 12. Wilhelmina | 19. Tri-county |
| 3. Bull Shoals | 13. Greeson | 20. Pine Bluff |
| 4. Norfolk | 14. Millwood | 21. Maddox Bay |
| 5. Ft. Smith | 15. White Oak | 22. Bear Creek,
Storm Creek |
| 6. Dardanelle | 16. Erling | 23. Greers Ferry |
| 7. Blue Mountain | 17. Georgia-Pacific | 24. Poinsett |
| 8. Nimrod | | 25. Big Lake |
| 9. Petit Jean | | 26. Lake Charles |
| 10. Maumelle | | |

Whatever the reason may be for the individual to seek outdoor recreation, statistics show that 90% of all Americans participate in some form of outdoor recreation also that 90% of all outdoor recreation is associated with water. Arkansas is blessed with an abundant supply of recreational waters.

The accompanying map shows the location of the major recreational lakes in Arkansas.

J. T. Jaynes, R.S.
Recreational Area Sanitarian

RESOLUTIONS



WHEREAS, the recent death of Dr. Howard A. Dishongh, a loyal member of this Society for forty-one years, has caused us to be deeply grieved; and

WHEREAS, Dr. Dishongh served not only his profession with unselfish devotion, but his community as well; and

WHEREAS, he had attained an enviable position of esteem among fellow physicians and had achieved recognition nationally for his contribution to aviation medicine;

BE IT THEREFORE RESOLVED:

THAT, in order to express our heartfelt sympathy and sense of loss, this resolution be forwarded to Dr. Dishongh's family; and

BE IT FURTHER RESOLVED:

THAT, a copy of this resolution be made a part of the permanent records of this Society; and

THAT, a copy of this resolution be forwarded to the Journal of the Arkansas Medical Society for publication.

By Action of the Memorials Committee
T. Duel Brown, M.D., Chairman

John McCollough Smith, M.D.

Lucas Byrd, M.D.

Adopted February 7, 1967

RESOLUTION

WHEREAS, the passing from this life of Dr. Louis K. Hundley, an honored and valuable member of the medical community and of the Jefferson County and Arkansas Medical Societies,

is noted with reverence and sorrow, and

WHEREAS, Dr. Hundley served the community of Pine Bluff through his church, and numerous civic organizations and through the School Board, and

WHEREAS, Dr. Hundley served with distinction in the interest of his patients and his colleagues, having served as President of the Jefferson County Medical Society and as President of the Arkansas Medical Society, and

WHEREAS, Dr. Hundley had an enviable record of service to all of us in the medical community of Arkansas, and his loss has caused us all to be saddened;

THEREFORE BE IT RESOLVED:

THAT, in order to express our heartfelt sympathy and feeling of loss, this Resolution be forwarded to Dr. Hundley's family, and

THAT, a copy of this Resolution be made a part of the record of this Society, and

THAT, a copy of this Resolution be published in the Journal of the Arkansas Medical Society.

Carl W. Nash, M.D., Secretary
Jefferson County Medical Society



Synthesis of Alpha, Beta, and Delta Peptide Chains by Reticulocytes From Subjects With Thalassaemia or Hemoglobin Lepore

S. M. Weissman, I. Jeffries, and M. Karon (National Cancer Institute, National Institutes of Health, Bethesda, Md) *J Lab Clin Med* 69:183-193 (Feb) 1967

A comparison was made among incorporation of radio-active amino acids into the α and β chains of hemoglobin A, the α and δ chains of hemoglobin A₂, and the α and non- α chains of hemoglobin Lepore by reticulocytes from non-hemoglobinopathic, Lepore trait, and thalassemic patients. Significant imbalance of α and β chain production was detected only in thalassemic subjects, a characteristics of thalassemia minor as well as thalassemia major. The relative rates of δ chain production were greater than those of β thalassemia chains. There was little depression of the synthesis of the non- α chains of hemoglobin Lepore relative to a chain formation in vitro by reticulocytes from patients heterozygous for hemoglobin Lepore.



EDITORIAL

Biliary Cirrhosis

Alfred Kahn, Jr., M.D.

Biliary cirrhosis is still a very lively topic. Baggenstoss and his group have described their experiences in several publications.

Forty-nine cases of biliary cirrhosis were reported in "Gastroenterology" (Vol. 47, p. 354, October, 1964.) The diagnosis is difficult as both the percutaneous liver biopsy and the laboratory tests in biliary cirrhosis suggest extra-hepatic obstruction. At times biliary cirrhosis is called chronic intra-hepatic obstructive jaundice. In studying the histologic specimens, Baggenstoss found 26 only fulfilled the criteria for cirrhosis. Of these 96% were women, and they had almost invariably an insidious onset. Pruritis, jaundice, and large liver were usually found. A big spleen, xanthelasma, and a high blood cholesterol were frequent manifestations.

The etiology in Baggenstoss' series does not follow a pattern. Some cases had had hepatotoxic drugs. Viruses have been suspected. Female hormones may play an etiologic role.

Xanthelasma and xanthomatosis are seen in association with elevated blood lipids, a frequent occurrence in these cases. Xanthomatous lesions disappear if the plasma lipid level returns to normal.

The hepatic function studies suggest biliary obstruction with a tendency to high alkaline phosphatase. There was no test which was of special value in identifying this disease.

The follow-up on 26 patients with histologic proof of jaundice showed that 13 died $4\frac{1}{2}$ to 9 years after onset; of the group of 23 patients without histologic evidence of jaundice, 10 died within $1\frac{1}{2}$ to 10 years after onset.

The pathologic findings in primary biliary cirrhosis include several features. Bile stasis was manifested by pigmentation of cells and bile plugs in the canaliculi. Focal necrosis was invariably

present. The portal tracts were always broadened; there were increased numbers of inflammatory cells and fibroblastic proliferation. The bile ducts were found to be both increased or decreased in different patients. The inflammation in the portal area leads to injury to the cholangioles and this in turn leads to the clinical picture and the characterization in milder cases as cholangiolitic hepatitis. Baggenstoss is of the opinion that cholangiolitic hepatitis is a mild disease which is reversible as long as the inflammatory reaction is limited to the limiting plate and adjoining hepatic parenchyma. If the inflammation spreads to the interlobular ducts, architectural and functional recovery is impossible and cirrhosis ultimately results.

Baggenstoss reported on the histogenesis of biliary cirrhosis in the "American Journal of Clinical Pathology" (Volume 42, p. 259, September, 1964.) This paper emphasizes the microscopic sequences leading to biliary cirrhosis and again stresses that the inflammatory reaction is reversible until it spreads to the interlobular ducts. A similar review is found in "Progress in Liver Diseases," (Grune & Stratton, Inc., p. 14, 1961).

Another line of investigation into the cause of primary biliary cirrhosis has been pursued by Paronetto, Schaffner, and Popper (New England Journal of Medicine, Vol. 271, p. 1123, November 26, 1964). It was suggested to them that since a specific injury to the intra-hepatic bile ducts seemed to be present and since the earliest phase of this was an infiltration with lymphocytes, plasma cells and immunocytic mesenchymal cells, possibly primary biliary cirrhosis was associated with an immune reaction. In their studies, they used frozen sections of tissue; antiserums were obtained against gamma 2 globulin, gamma 1 M globulin, fibrinogen, and albumen; serum speci-

mens were obtained from patients.

The findings of Paronetto indicated that primary biliary cirrhosis has a different immunochemical structure than other types of liver disease. The mesenchymal cells in the portal areas and fibrous bands contain gamma 1 M globulin (19 S macroglobulin). This is in contrast to hepatitis and other types of cirrhosis where the mesenchymal cells contain gamma 2 globulin. The type of specific protein found in the liver in primary biliary cirrhosis is found in increased quan-

ties in the serum. Rheumatoid factor is present in chronic biliary cirrhosis, but is not a specific reaction. Circulating antibodies to various liver elements have been described but their meaning is unclear. The presence of the rather specific gamma 1 M globulin producing cells in biliary cirrhosis suggests to these authors that chronic biliary cirrhosis is a specific disease entity.

The riddle of chronic biliary cirrhosis seems a little closer to our understanding.

ANSWER—Electrocardiogram of the Month

RATE: 70 RHYTHM: Sinus

PR: .16 QRS: .08 QT: .33

SIGNIFICANT ABNORMALITIES:

Artifact in lead 1; mounted upside down.

Significant Q, 1, V2, V3, V4, with abnormal elevation of S-T in those leads and reciprocal depression in 111, aVF.

Beginning late T inversion in 1, V2, V3, V4, V5.

INTERPRETATION: Abnormal

Acute transmural myocardial infarction, anterior. Artifact: Reversed mounting of lead 1.

COMMENT: An example of technical error.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Constrictive pericarditis tuberculous.

X-RAY FINDINGS: Calcification of the pericardium.

MEDICINE IN THE



MEDICAL SCHOOL EXPENDITURES FOR FACILITIES CONSTRUCTION, 1948-1965

U. S. medical schools have expended more than \$2 billion for facilities construction completed in the years 1948-1965. Figure 1 depicts the proportional distribution of medical school expenditures for facilities (including fixed equipment) devoted to teaching and research, medical service and other support functions.

The estimated dollar value of construction expenditures for each type of facility completed in the periods 1960-65, 1948-59, are presented in Table 1; also presented are totals for the period 1948-1965. In the past six years U.S. medical

schools have expended an annual average of \$69,708,000 for facilities construction.

Despite the expenditure of over \$2 billion for completed facilities construction, a considerable need for additional construction remains unmet at the present time. The U.S. Public Health Service in a report prepared for the Joint Economic Committee of the U.S. Congress has estimated that as of June 30, 1965, U.S. medical schools face a backlog of unmet construction needs of \$1,868,000,000. The PHS has also estimated the requirements for additional construction through June 30, 1975 to be \$2,391,000,000.



PERSONAL AND NEWS ITEMS

Dr. Grasse to Viet Nam

Dr. John M. Grasse, Jr. of Calico Rock departed for Viet Nam on March 17th for a sixty-day period of voluntary service.

Dr. Darnall Receives Plaque

Dr. Harley Darnall of Fort Smith received a plaque at a banquet meeting in February of the Child-Family Guidance Center in Fort Smith. The plaque was presented for his service on the board of directors of the center. Dr. Henry Sims is psychiatric consultant for the center. Dr. Robert Sherman and Dr. James Thompson serve on the personnel and finance committee. Dr. Darnall serves on the house and grounds committee.

Dr. and Mrs. Roy Visit Memphis

Dr. and Mrs. J. Max Roy of Forrest City were visitors in Memphis in February to attend the

programs and social events of the 78th Annual Meeting of the Mid-South Post-Graduate Medical Assembly.

Open House Held

Open house was held in February at the new Hambling Clinic in Hamburg. The modern clinic contains the facilities of Dr. Charles Hicks and Dr. J. D. Rankin who are both physicians, and Dr. T. S. Hedgecock, a dentist.

Dr. Irwin Is Speaker

Dr. Raymond A. Irwin, Jr. of Pine Bluff discussed his career in medicine at a Medical Careers Day assembly held at Pine Bluff High School in March. The program was sponsored by the Woman's Auxiliary to the Jefferson County Medical Society.

Dr. Rushton Awarded

Dr. Joe Rushton of Magnolia was recently presented the "Golden Book of the Eagles" at the annual Eagle Scout banquet held in El Dorado. Greg Walker, son of Dr. and Mrs. Jack Walker of Magnolia, presented the book to Dr. Rushton. The book has the names of all the members of the 1966 class of Eagles, which was named in Dr. Rushton's honor.

Dr. Manley Attends Meeting

Dr. R. H. Manley of Clarksville was in Washington, D.C. from February 14-20, to attend the 16th Annual American College of Cardiology.

Dr. Swingle Is President

Dr. Charles G. Swingle of Marked Tree assumed the presidency of the Mid-South Postgraduate Medical Assembly in February at a meeting of that group in Memphis. Dr. Swingle is a past-president of the Craighead-Poinsett County Medical Society and a former member of the Arkansas Board of Health.

Dr. Wilson Is Committee Member

Dr. Joe Bill Wilson of Harrison, president of the Boone County Medical Society, is a member of a committee studying the question of how to finance an ambulance service for Boone County.

Doctors Get New Offices

Two new buildings now being erected in the 700 block of West Grove Street in El Dorado will house the offices of Dr. Berry L. Moore, Jr., and Dr. Ernest R. Hartmann. Dr. Moore is a physician and surgeon; Dr. Hartmann is an orthopedic surgeon.

Dr. Johnston Is Honored

Dr. O. J. T. Johnston of Batesville was recently presented the third annual Civitan Citizenship Award at the Civitan's annual meeting. The Civitan award is bestowed for outstanding service in stimulating better citizenship. Dr. Johnston, who is 83 years old, has been practicing medicine in Independence County for sixty years. Dr. Johnston served as president of the Arkansas Medical Society in 1937-38.

Dr. Brightwell Addresses Group

Dr. R. J. Brightwell of Fayetteville spoke to the Fort Smith District Nurses Association in March on the subject "Medical Ethics".

Dr. Bradford Is Speaker

Dr. A. C. Bradford of Fort Smith was guest speaker at the St. Edwards School of Nursing in Fort Smith in April. His topic was "Quackery".

Dr. Feilds Is Guest Speaker

"Years After Forty" was the topic of a talk given by Dr. T. E. Feilds of Fort Smith at a meeting of the Fort Smith District Nurses Association in April.

Dr. Saltzman to Again Head Council of AMA

Dr. Ben N. Saltzman of Mountain Home has been re-elected chairman of the Council on Rural Health of the American Medical Association, the AMA announced this week.

Dr. Saltzman's re-election was announced by Dr. Wesley W. Hall, chairman of the AMA's board of trustees.

The council works toward the betterment of the health of the rural-urban population through guidance and assistance in development of national programs such as community planning for health facilities and health manpower, planning for emergency medical care and first aid training, for education for personal and community health responsibility, and efficient utilization of rural health care services, as well as sponsorship of national conferences, health education seminars, assistance in research for rural health improvement, and promotion of health careers information programs for rural youth.

Dr. Satterfield Addresses Group

Dr. John Satterfield addressed the Fifth Council District at El Dorado, Arkansas on January 26, 1967. His topic was "Surgical Disease of the Chest".

HOSPITALS ELECT STAFF OFFICERS

Clarksville Hospital

Dr. James M. Kolb, Sr., of Clarksville is the new chief of staff of the Clarksville Hospital. Dr. Walter H. Lane, Jr., of Dover is vice chief of staff and Dr. Guy Shrigley of Clarksville is secretary.



OBITUARY

Dr. Daniel Robert Hardeman

Dr. Daniel R. Hardeman, a Little Rock physician and surgeon, died February 9, 1967, at the age of 64. He was a lifelong resident of Little Rock, son of the late Dr. Daniel Robert and Gertrude Woodson Hardeman. He was educated in the Little Rock public schools, graduated from the University of Arkansas School of Medicine in 1927, interned at the Touro Infirmary at New Orleans and at Mayo Clinic for two years. He went into private practice in Little Rock in 1932 and was on the staff of Arkansas Baptist Medical Center and St. Vincent Infirmary. He was a member of the Pulaski County Medical Society, Arkansas Medical Society, and the American Association of Physicians and Surgeons. He served in the U.S. Medical Corps during World War II. He was a member of and on the official board of the Church of the Open Door. Survivors include his widow, and one son.

Dr. Glenn Herbert Johnson

Dr. Glenn H. Johnson, aged 67, a retired Little Rock physician, died February 13, 1967. He owned and operated the Glenn Johnson Ranch in Pulaski County on Highway 10. He was born at Harrison, son of the late Dr. J. J. Johnson, a prominent Harrison and northwest Arkansas physician before the turn of the century, and Lillian Cory Johnson. He had been a resident of Little Rock for fifty years and retired from active medical practice specializing in gynecology in 1962 after thirty years of practice. He was a graduate of the University of Arkansas School of Medicine in 1929 and in 1935 was appointed professor of gynecology at the medical school. In 1937 he established and conducted until 1948, the University Clinic for the treatment of cancer. He was a member of the American Radium Society and was a founding and lifetime fellow of the American College of Obstetrics and Gynecology and was a member of the Central Association of Obstetrics and Gynecology. He held a lifetime fellowship in the American College of Surgeons and from 1939 until his retirement he was the Arkansas chairman

of the committee on applicants for the college. He was considered by many national organizations as an authority on gynecologic cancer and was a contributing author of text books on gynecology widely used in medical schools in the United States, Canada and Great Britain. He was a member of Pulaski County Medical Society, Arkansas Medical Society, and the American Medical Association. He was a member of the First Christian Church and the Little Rock Country Club. Survivors include his widow and three sons.

Dr. Allen A. Gilbert

Dr. Allen A. Gilbert of Fayetteville died March 6, 1967, at the age of 76. He was the University of Arkansas' first director of student health services. He served as the director of student health services from 1923 to 1937, when he returned to private practice and was succeeded by the late Dr. Fount Richardson. Dr. Gilbert was born August 26, 1890, at Burton, Kansas. He earned his M.D. degree at Washington University at St. Louis. He served overseas as a medical officer during World War I. He was a member of the Shrine and the Royal Order of Jesters and was a past national officer of the Forty and Eight. A Fellow in the American College of Physicians, for many years he served as a medical examiner for the Federal Aviation Agency. He was an officer in the state and county Heart Association and a member of the Presbyterian Church. He is survived by one son.



PROCEEDINGS OF SOCIETIES

Lawrence

New officers of Lawrence County Medical Society are: Dr. J. J. Whittington, III, president; Dr. J. B. Elders, vice-president and secretary-treasurer. The new officers were installed by the County Society at a meeting in February at Law-

rence Memorial Hospital. Dr. James Hickman, chief-of-staff of the hospital, was in charge of the program and showed two medical films. Dr. R. O. Martin of Paragould, anesthesiologist, was a guest at the meeting.

Woodruff

Woodruff County Medical Society officers for 1967 are: Dr. Fay B. Millwee of McCrory, president; Dr. J. W. Morris of McCrory, vice president; Dr. B. E. Hendrixson of McCrory, secretary; Dr. James E. Rowe of McCrory was elected delegate to the Arkansas Medical Society.

Columbia

The members of Columbia County Medical Society gave pre-school health examinations for first grade pupils who will enter the Magnolia Schools in September. The pre-school clinic was held at Magnolia in March.



The Woman's Auxiliary to the Arkansas Medical Society and the University of Arkansas Medical Center Auxiliary held a tea on February 23, 1967 for wives of Arkansas legislators in Jeff Banks Student Union Building at the University of Arkansas Medical Center. Mrs. John McCollough Smith is president of the Medical Society Auxiliary and Mrs. Ted Panos is president of the Medical Center Auxiliary. Mrs. Elvin Shuffield and Mrs. Byron Hawks were general chairmen of the tea.



BOOK REVIEWS

THE STOMACH INCLUDING RELATED AREAS IN THE ESOPHAGUS AND DUODENUM, Edited by Charles M. Thompson, Donald Berkowitz and Edwin Polish and Consulting Editor, John H. Moyer. Published by Grune & Stratton, New York and London, 1967.

This book has four distinguished editors who have selected a large number of authors to write the individual chapters in the book. The text is complete and up-to-date. There are adequate references, charts and illustrations. In general the book may be described as having the latest information published in book form on the stomach. A large portion of the book is devoted to peptic ulcers, as it should be. However, interesting discussions of other problems as hiatus hernia, pylora spasm, etc. are included. This book is recommended to the gastro-enterologist and internist as being a very worthwhile text.

CLINICAL PATHOLOGY-INTERPRETATION AND APPLICATION, by Benjamin B. Wells, M.D., Ph.D., and James A. Halsted, M.D., published by W. B. Saunders Company, Philadelphia and London, 1967.

This text is considered a standard in teaching institutions. It is an up-to-date condensed text in this broad field of clinical pathology. It is suitable for the internist, the general physician and the medical student. The authors are quite competent in their field and the book is considered to be authoritative.

HEARTS—THEIR LONG FOLLOW-UP, Paul Dudley White, M.D., Helen Donovan, published by W. B. Saunders Company, Philadelphia and London, 1967.

This book is, as the title indicates, a text about the long-time follow-up of patients with heart disease. It is interesting and instructive. The bibliographies are good; there are a moderate number of illustrations, charts and photographs. The text is of primary interest to the internist and in any case this is an interesting and valuable supplemental text.



Epidemic Enteropathogenic *Escherichia coli*, Newfoundland, 1963; Autopsy Study of 16 Cases Y.-M. Rho and J. E. Josephson (St. John's General Hosp, Forest Rd, St. John's, Newfoundland) *Canad Med Assoc J* 96:392-397 (Feb 18) 1967

Autopsy findings and other features in 16 fatal cases of infantile diarrhea associated with enteropathogenic *Escherichia coli* infection are discussed. The median age at the first positive stool culture was 4.8 months, the two youngest being 16-day-old infants and the oldest 22 months. Almost half the cases were under 4 months and one third under 2 months of age. Pathological changes in the gastrointestinal tract were meager and non-pathognomonic. The finding of fatty metamorphosis of varying degrees in the liver in all of the cases is probably associated with either a state of premalnutrition or actual malnutrition of the infant. Severe respiratory tract infection was the leading terminal cause of death. Enteropathogenic *E coli* serotype 0111:B4 was the prevalent offender.



Sponsored by Arkansas Tuberculosis Association

PRINCIPLES OF RESPIRATORY CARE

Adequate facilities and team work are essential to meet emergencies due to respiratory failure. Aspects of the care program are discussed in a statement of the Committee on Therapy, American Thoracic Society, Medical Section, National Tuberculosis Association.

The respiratory apparatus of the human body exists to exchange oxygen (O_2) and carbon dioxide (CO_2) between ambient air and blood. Its functional reserves maintain normal CO_2 and O_2 tensions in the organism during times of unusual demand or after damage. However, if there is excessive damage to the respiratory apparatus or if compensation fails due to inadequate reserves, the patient has respiratory insufficiency.

Patients who require respiratory care have one or more of the following defects: alveolar hypoventilation, abnormal ventilation-perfusion relationships, diminished gas transfer and hypoxia, and acidosis from nonpulmonary causes. Alveolar hypoventilation is caused by brain damage, narcotic or sedative drugs, paralysis of respiratory muscles, chest injury, painful breathing, and airway obstruction. Ventilation-perfusion relationships are disturbed by pulmonary edema, emboli and infarction, bronchitis, bronchiolitis, asthma, cystic fibrosis, emphysema, and after thoracic or abdominal surgery or cardiopulmonary bypass. Diminished gas transfer reflects loss of lung surface area from emphysema, fibrosis, pneumonia, pulmonary edema, and infarction. The nonpulmonary causes are systemic blood flow reduced by acute myocardial infarction, cardiac arrest and shocks, and inadequate hemoglobin due to severe anemia and other causes.

Adequate care for patients in respiratory failure requires organization of specially trained personnel and centralization of facilities and team approach. A physician who understands respiratory physiology and pulmonary disease should

direct the service. The problems of children require a specially trained pediatrician. Adequate records should be kept and reviewed frequently.

One element of treatment for hypoventilation is clearance of the airways. Cough is the major mechanism for tracheobronchial clearance when ciliary mucus transport is damaged or overloaded by abundant or tenacious mucus. In conscious, cooperative subjects, ventilation can be improved so that expulsive force is augmented and secretions mobilized by positive pressure respirators.

Secretions must be thinned in treating respiratory failure patients who have bronchitis and inspissation of secretions. Water can be delivered to the mucus-covered surface which must be hydrated by having the patient inhale nebulized water particles or by injecting sterile water or saline into his trachea.

Several factors must be taken into consideration in nebulization therapy. These include the size of the particle; the composition and vapor tension of the nebulized solution; and the osmolality of nebulized solutions.

Of the many agents administered by aerosols, only isoproterenol epinephrine and phenylephrine have been shown to decrease airway resistance. Small freon-propelled nebulizers containing isoproterenol and phenylephrine are useful in cooperative patients. Subcutaneous epinephrine and intravenous theophylline ethylene diamine are often effective.

Postural drainage improves cough efficiency in patients with a large volume of thin secretions.

When other methods have not been successful in clearing the airways, nasal tracheal suction or tracheal intubation may be used. Bronchoscopy is not usually necessary, but may be essential after aspiration of foreign bodies.

Although tracheostomy can be done in a few minutes by a competent physician, a nasal endotracheal tube can be inserted much more rapidly for the emergency treatment of asphyxia. Tracheostomy constitutes an excellent portal for suctioning the trachea and major bronchi, and the cuffed

Committee on Therapy, American Thoracic Society, RAYMOND CORPE, M.D., chairman. *American Review of Respiratory Disease*, February, 1967.

tracheostomy tube is a good connection to a respirator.

SUPPLY OF OXYGEN

Studies of patients with lung diseases have demonstrated the necessity for monitoring the arterial blood to appraise oxygenation. Because transport of oxygen is principally by hemoglobin, the aim of therapy is to raise the arterial blood oxygen tension sufficiently to saturate hemoglobin. Often the status of patients with respiratory failure changes so rapidly that arterial blood oxygen tension must be measured frequently.

Patients with considerable arteriovenous shunting, emphysema with pneumonia, or severe interstitial fibrosis need 50 per cent or more oxygen for arterial blood O_2 tensions to be 70 to 90 mm. Hg. However, patients with emphysema and bronchitis usually reach these tensions breathing 30 to 40 per cent oxygen. They may hypoventilate and become comatose while breathing 50 to 90 per cent O_2 .

The objective of respiratory or ventilator treatment is to improve alveolar ventilation by assisted (patient-cycled) or controlled (machine-cycled) ventilation. The three types of modern respirators are (1) pressure-cycled (intermittent positive pressure), patient- or machine-controlled; (2) volume-cycled; and (3) time-cycled. These are

more effective and more flexible than body respirators. Newborns and small children require special apparatus.

Bedside care is important. Air entry and exit in all lung segments should be listened to frequently with a stethoscope, and movement of the sides of the chest observed.

Hazards in treatment included asphyxia, increased acidosis during oxygen administration, cardiac arrhythmias and seizures associated with hyperkalemia during rapid or excessive reductions of CO_2 tension, persistent hypochloremic alkalosis from rapid removal of CO_2 in chloride depleted patients, shock, seizures and coma associated with severe sustained alkalosis produced by mechanical ventilators, oxygen tonicity, and bronchopneumonia from breathing aerosols produced by contaminated nebulizers.

Respiratory failure is frequently precipitated by infection with respiratory viruses that damage or destroy the tracheobronchial mucosa. This facilitates bacterial invasion of the mucosa.

Bacteria may enter from dirty hands, contaminated suction catheters or other equipment, from the patient's skin through a tracheostomy, by aerosol from cultures growing in nebulizers, or from contaminated solutions. Scrupulous attention should be given to handling suction catheters with sterile gloves or scrubbed hands.



Ultrastructural Localization of Nucleoside Triphosphatase in Langerhans' Cells

K. Wolff and R. K. Winkelmann (Mayo Clinic, Rochester, Minn) *J Invest Derm* 48:50-54 (Jan) 1967

Nucleoside triphosphatase has been demonstrated with the electron microscope in guinea pig epidermis, exclusively localized in the cytomembranes of Langerhans' cells, while keratinocytes and melanocytes failed to exhibit an enzymatic reaction. This confirms the light microscopic localization of this enzyme and demonstrates that quantitative assessments of nucleoside triphosphatase-positive cells in epidermal sheets are highly representative of the Langerhans' cell population and suggest the existence of a Langerhans' cell epidermal unit.

Relative Potency of Arginine-8-Vasopressin and Lysine-8-Vasopressin in Humans

L. Miller, L. Fisch, and C. R. Kleeman (Dept of Medicine, Univ of California, Los Angeles) *J Lab Clin Med* 69:270-291 (Feb) 1967

Fifteen normal male and female subjects, ages 22 to 37, were given low submaximal infusions of arginine-8-vasopressin (AVP) ($64\mu U$ to $167\mu U$ per minute per 1.73 sq m) and lysine-8-vasopressin (LVP) ($64\mu U$ to $562\mu U$ per minute per 1.73 sq m) during a maximal sustained water diuresis. After paired sudden injections followed by infusions of the two hormones, the effect was the same for the first ten minutes, but in the subsequent periods AVP had a greater effect. There was no difference in the turnover between overhydration and dehydration.

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JOURNAL OF THE ARKANSAS MEDICAL SOCIETY

Volume 63

June, 1966—May, 1967

ABBREVIATIONS—

(O) Original Articles; (SP) Special Articles;
(BR) Book Reviews; (E) Editorial; (OB) Obituary;
(R) Resolution;

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